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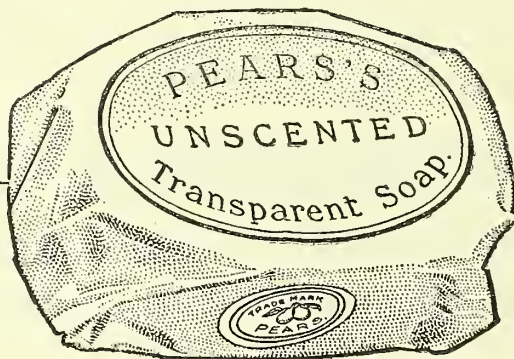
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Gradually,
Permanently,
Safely**

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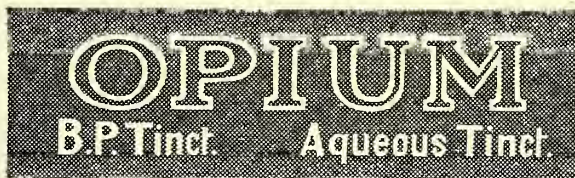
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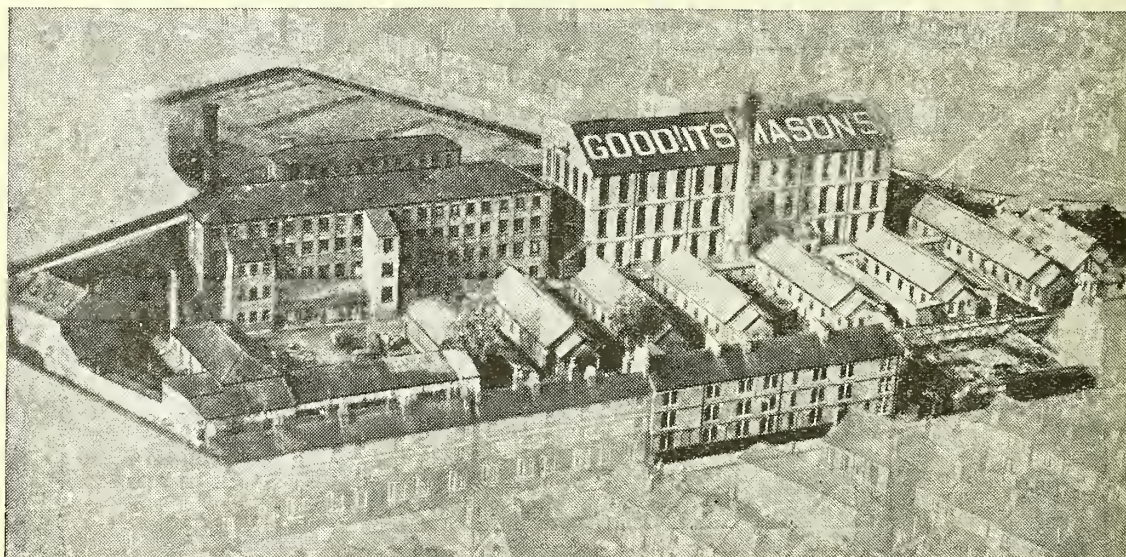
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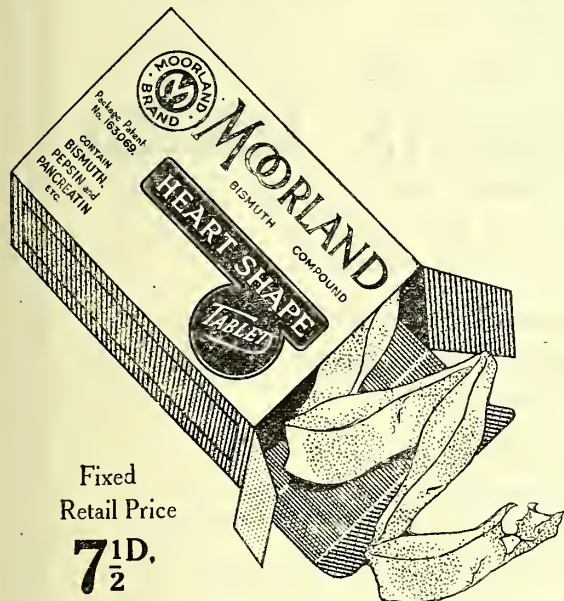
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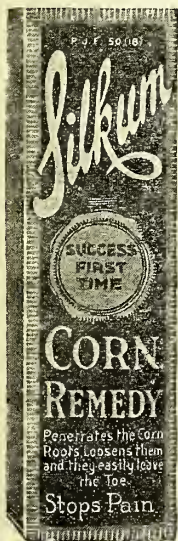
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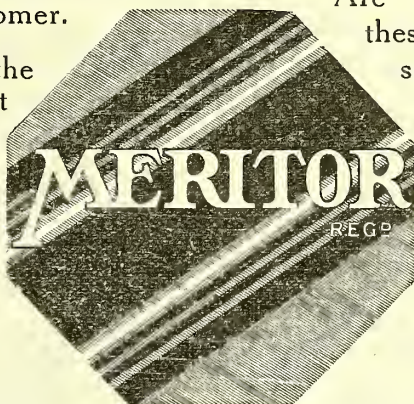
Holds up the traffic. The London policeman stops all vehicles until she and her guide have crossed the busy Bank corner. They are on their way to arrange ROSE'S display of Fruit Essences at the Confectioners' Exhibition.

Maw's Page

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The signature to the letter ensures that the reply will be addressed to the sender. The Meritor Seal ensures that the natural corollary to every Meritor sale—a repeat order—shall come to the chemist.



"Meritor" Brushware is rapidly winning popularity and the Meritor Seal is directing extra profits into the till of qualified pharmacists in all parts of the world.

Are you participating in these profits? Are you securing your share of the extra toilet brushware business the Meritor scheme is producing? Are you using the Meritor Seal as the signature of your own toilet brushware business?

Put Meritor Brushware on your shelves, on your counter and in your window. Then watch your turnover in toilet brushware.

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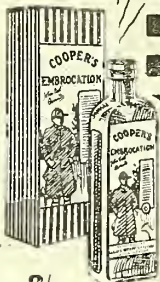
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(TRADE MARK REGD.)

IMPORTANT NOTICE.

Being satisfied with the best and nothing but the best, and in view of exhaustive experiments carried out recently in our Bacteriological Research Laboratories having proved to us that where an UNBAITED Virus is required the Liquid form is more potent than that hitherto supplied on Jelly in tubes, we have decided to withdraw the latter from the market.

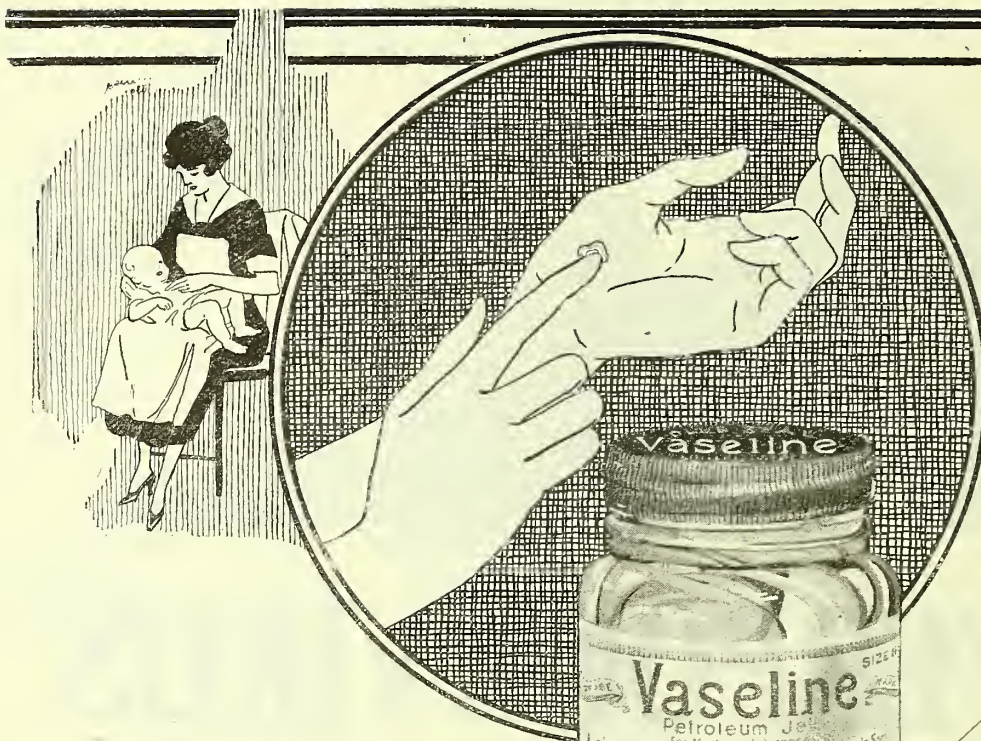
The prices of the Liquid Virus are the same as for the Baited in Tins, which we still recommend as being the more convenient form for general domestic use.

	Retail.	Wholesale.
For Mice ..	1/6	1/- each or in not less than ½-do. 10/- doz.
For Rats ..	2/6	1/9 " " " 18/- "
For Rats ..	6/-	4/9 " " " 45/- "

Net Monthly A/c.

EVANS

EVANS SONS LESCHER & WEBB, LTD.
LIVERPOOL New York LONDON



*"Your
Friend
in
a
Hundred
Troubles."*

*Its many
USES
bring you many
CUSTOMERS*

Every household emergency brings you a customer for "Vaseline" Jelly. People have grown to know and to trust it. The wonderful soothing qualities of "Vaseline" Jelly are sought for every burn, every cut, every bruise. No Chemist can afford to be without it. Constant advertising to the public reminds people of the manifold uses of "Vaseline" Jelly. That helps to send you custom. Keep a plentiful store of "Vaseline" Preparations—people who know them will refuse all substitutes.

Trade **Vaseline** Mark
Petroleum Jelly

Chesebrough Manufacturing Co.
(Consd.) : : London, E.C.1.

STOCK THESE LINES ALSO.

EACH HAS MADE FRIENDS
AND PATRONS OF THE
BRITISH PUBLIC.

**"VASELINE"
CARBOLATED**

Petroleum Jelly for cuts, burns,
wounds, skin abrasions, etc.

**"VASELINE"
EUCALYPTOL**

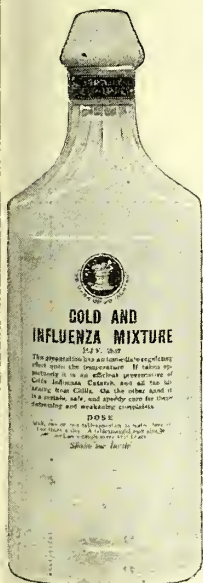
Petroleum Jelly for head colds,
influenza, gnat bites, etc.



Ayrton's



There's money
in your
own name.



"Ye mark of ye
Mortar."

Just one specimen of our
"Series" packings.

With your own name and
address overprinted, big and
personal business is certain.

IT'S YOUR SHOP—THE
FITTINGS AND STOCK
ARE YOURS—THE PRO-
FESSIONAL KNOW-
LEDGE IS YOURS—

Why? why?? why???
Isn't the name yours?

When you proposed—

something a little out of the ordinary to your manu-
facturer or wholesaler, did you get the deaf ear, or a
careful consideration, and an obvious desire to serve
your interests?

We repeat a recent announcement that for 54 years
we have fulfilled the purpose for which we were
established—to *serve the Chemist*.

Your concerns are ours, and we seek
that co-operation which is bound to be
mutually advantageous.

No part of our service is more valuable to us and
to you than the facilities we offer for the Chemist
to make his business his own by "own name"
products.

We give you

A PERSONAL INVITATION

to secure our "Star"—"Mortar"—"Anchor"—
or "Purple Key" series for your own district.
With your own name and address overprinted and
the label device reserved to you within a radius of
two miles, the scheme is a safe and paying one.

Special packings for Export.

Prices on application.

AYRTON SAUNDERS & CO., LTD.,
34 HANOVER STREET, - - LIVERPOOL.

Telegrams: "Sundries Liverpool."

Telephone: Royal 4861.



Now Stocked by all the leading Wholesale Houses.

MINIMUM P.A.T.A. PRICES.

No. 1. Large Wickers	56/- each.	No. 4. 6-oz. Square (in boxes of 3)	14/- each.
No. 2. Medium	30/- "	No. 5. 4-oz. size (in boxes of 6)	8/9 "
No. 3. Small	15/- "	No. 6. 2-oz. size (in boxes of 6)	4/9 "
No. 43. 1-oz. Watch Shape, with Sprinkler, 2/6 each.			

FOR FULL PARTICULARS OF TERMS AND DISCOUNTS APPLY TO—

R. J. REUTER - 69 CARTER LANE, E.C. 4

8:4711.  Eau de Cologne



Perfumery of Distinction

always appeals to the cultured few, but Perfumery of Cheapness—alas!—is what at present attracts the multitude. Fortunately the well-known "Distol" Ottos enable the pharmacist to sell perfumery at moderate prices without doing violence to his reputation for quality.

Fight the Perfumery Slump with "DISTOL" OTTOS

"Distol" Ottos produce perfumes costing round about 20/- per pint. By retailing at 2/- per ounce and effectively stressing the fact, a good deal of lost trade could be recaptured. You run no risk in making the experiment because "Distol" perfumes are so easily made that it is only necessary to mix small quantities for immediate requirements.

There are 40 "Distol" Ottos costing 7/6 per oz. Ask for samples of any six.

THOMAS KERFOOT & CO. LTD.
BARDSLEY VALE, LANCASHIRE,
& Bardsley House, London, N.1
ESTABLISHED 1797.

COPYRIGHT

DEARBORN LTD

37 Gray's Inn Road,
LONDON, W.C.1.

Toilet Specialties.

	Price per doz. to Retailer	Selling Price P.A.T.A.
PILENTA SOAP	10/-	1/-
A complexion soap.		
PROLACTUM	10/-	1/-
For the lips.		
PARSIDUM JELLY	10/-	1/-
For wrinkles.		
ALLACITE OF ORANGE BLOSSOM	22/6	2/6
A dressing cream.		
BORANIUM	22/6	2/6
A hair tonic.		
CLEMINITE	22/6	2/6
For a face lotion.		
COLLIANDUM	22/6	2/6
For a face tint.		
PERGOL	22/6	2/6
A deodorant.		
TEKKO PASTE	22/6	2/6
Camphor cream.		
STALLAX	22/6	2/6
For a shampoo.		
JETTALINE	31/6	3/6
For clearing the skin.		
PHEMINOL	36/-	4/-
A depilatory.		
MENNALINE	36/-	4/-
For the eyelashes.		
MERCOLIZED WAX	31/6	3/6
A face cream.		
STYMOL	36/-	4/-
For oily complexions and blackheads.		
SILMERINE	22/6	2/6
Hair-curling fluid.		
BARSYDE	22/6	2/6
Dandruff eradicator.		
TAMMALITE	22/6	2/6
For grey and faded hair.		
LIQUID PERGOL	31/6	3/6
To check excessive perspiration locally.		
BICROLIUM	22/6	2/6
For whitening the hands.		
HARAPOSA	22/6	2/6
Nut oil shampoo.		
COCONOIDS	31/6	3/6
For figure development.		

The Products of

Messrs. PARKER, BELMONT & CO.

CLYNOL BERRIES	36/-	4/-
For obesity.		
SOFT PALERIUM	45/-	5/-
For wrinkles.		
LIQUID NAIL POLISH	10/-	1/-
Brilliant and lasting.		

Stocked by ALL Wholesale Houses.

COLONIAL DEPOTS AND AGENCIES.

Australia: ALL WHOLESALE, & DEARBORN (Australia),
Ltd. Grace House, Clarence Street, Sydney.
South Africa: LENNON Ltd. Cape Town, etc.
SIVE BROS. & KARNOVSKY, Johannesburg.
India: FRAMJEE & SON, Bombay.
SMITH, STANISTREET & CO., Calcutta.
New Zealand: SHARLAND & CO., Auckland & Wellington.
South America: DEARBORN (South America), Ltd., Calla
Salta 264, Buenos Aires.

Do not underestimate the importance
of securing stand space at the

Manchester Chemists' Exhibition

This event is engaging the keenest
interest of the trade. You can rest
assured that there will be a large
attendance of manufacturing,
wholesale and retail chemists from
the most important markets in the
North of England.

November 20th—25th, 1922,
under the auspices of the
Manchester Pharmaceutical Association.

For plans and particulars of space still available apply

PROVINCIAL EXHIBITIONS, LIMITED
CITY HALL, MANCHESTER.

Telephone: 3832-3 City. Telegrams: "Exhibition, Manchester."

YOU MUST KNOW

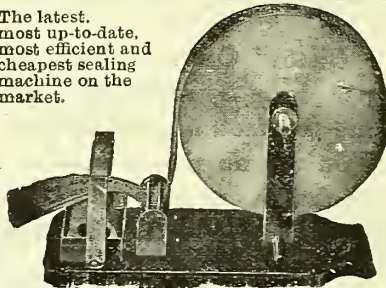
if you are using String, Twine, or Wax for packing, how
slow, expensive and clumsy any of these methods are.

GUMMED TAPE is being used by most of the large and up-to-
date Firms. But to make sure of Efficiency in your Packing
Department use the best Moistener on the Market—KING'S
"AWLMETAL."

As the name denotes, this Moistener is made completely of
Metal. Do not waste time and Money in buying Wooden
Machines which will cost you more and will soak up the
moisture into the wood and quickly become unusable.

The "AWLMETAL" Moistener
will last a lifetime.

The latest,
most up-to-date,
most efficient and
cheapest sealing
machine on the
market.



PRICE

12/6
EACH

Gummed Tape
Extra.

Points.—All metal non-rustable bath and brass roller. Special device to keep
tape off roller when not in use. Nickel Cutter. Will take one roll up to
3 in. width or two 1 in. rolls. Takes up small space—viz. 11 x 5½ in. The
whole machine takes to pieces for cleaning purposes.

Send a Postcard for a Machine on approval at once.
GUMMED TAPE for use with King's "AWLMETAL" Moistener.
No. 694 Brown Tape Kraft, width 1 in., length 800 ft., at
2/1 per roll, 24/- per doz.

Gummed Tape can be had in all sizes, qualities, and colours.
If required specially printed, send us particulars; we will quote
Special Prices by return.

Sold by **J. C. KING, LTD.** (1)

Specialists in all kinds of Stationery and Time-Saving Appliances.
42-60 Goswell Road, London, E.C.1.



In Green Bottles, Registered.

Frozoclone

REGD.

The Original and Best
SOLID EAU DE COLOGNE

has many imitators but no equal.

Its elegance and utility appeal to all.

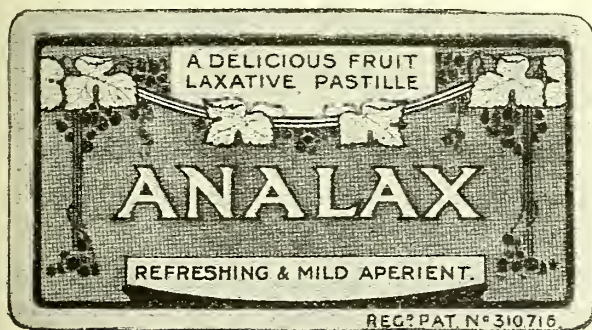
Made from the finest Eau de Cologne. Refreshing when rubbed on the forehead, pleasant as a smelling bottle, invaluable in a heated atmosphere and when travelling. A real acquisition to every household. Excellent after shaving. A boon to those in hospital.

RETAILS AT **3s. 6d.** Minimum (P.A.T.A.) PER DOZEN **32/-**
SPECIAL TERMS FOR BONDED SHIPMENT OF 4 gross minimum.

SOLID ENGLISH LAVENDER

Similar size and packing
 as "FROZOCLONE"
 but in **BLUE** glass.

TERMS AS FOR FROZOCLONE.



THE IDEAL FRUITY LAXATIVE

In Pastille form. Delicious, Reliable, Effective.

Retails at **2s. 3d.** minimum Per dozen **21/-**

REDUCED PRICES FOR EXPORT.



The Nail Polish

with new and distinctive features.
 Softens the cuticle. Brilliant polish.

Retails **1s. 9d.** Per Dozen **15/-**

R. DEMUTH'S LABORATORIES

68 Salusbury Road, and Montrose Avenue, LONDON, N.W. 6.

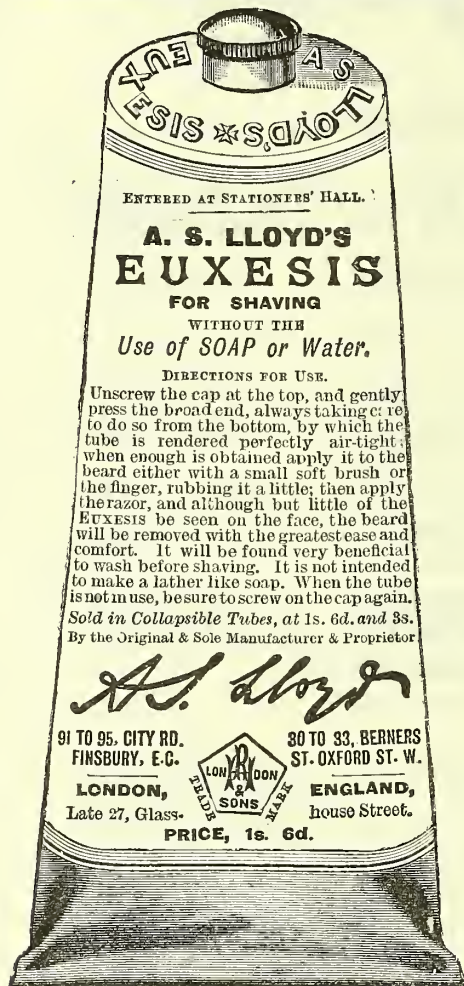


TRADE MARK.

A. S. LLOYD'S EUXESIS

(THE GENUINE).

For Shaving without Soap, Water, or Brush.



**Sold by all Perfumers and Chemists
throughout the World.**

R. HOVENDEN & SONS having purchased, under an administration suit, the Business of the late A. S. LLOYD, with the Receipt, Trade-Mark, and Goodwill of the celebrated Euxesis, the Trade are cautioned that the original and genuine Euxesis is now manufactured at our Factory ONLY and may be obtained at either of our Warehouses.

PRICES ON APPLICATION.

NOTICE.—THE GENUINE A. S. LLOYD'S EUXESIS bears a label printed in BLACK only on a Yellow ground, with our Trade Mark at the bottom, as Illustration.

Proprietors: **R. HOVENDEN & SONS, LTD.**
LONDON: 29-33 Berners Street, W.1; and 89-95 City Road, E.C.1

"Jackel's Cream"

(without Grease)
for THE HAIR

Sold everywhere
Established 1883.



"Jackel's Cream" fixes the hair in any desired position; is unexcelled as a dressing and does not soil the headwear. It removes Scurf and Dandruff, keeps the scalp healthy, and promotes the natural growth of the hair while maintaining its softness and brilliancy.

Prices for Wholesale and Export
Houses on application.

Jackel et Cie (of Paris)
Ltd.,
Sauchiehall Street,
GLASGOW.

CRYSTALLISED
1/9 CREAM 2/6
Trade Mark attached to each
bottle.

"Newbery's"

FRANCIS NEWBERRY & SONS LTD

Oil of Peppermint.

Pharmacists in their dispensing and manufacture should use Oil of Peppermint which is produced only from selected plants.

As the sole selling agents for Messrs. John Jackson & Co., Ltd., of Mitcham, the largest growers of Peppermint, we are able to supply Oil of Peppermint in sealed containers guaranteed to meet the B.P. standard.

FRANCIS NEWBERRY
& Sons, Ltd.
LONDON & CARDIFF.

A. S. LLOYD'S EUXESIS.

For Shaving without Soap, Water, or Brush.

CAUTION.

The Labels on GENUINE EUXESIS bear two signatures—
A. S. Lloyd in Black Ink, and that of his Widow,
Aimée Lloyd, in RED. Refuse any other.

Sole Manufacturers and Proprietors: AIMÉE LLOYD & CO.
23 PANTON STREET (formerly named Spur Street),
HAYMARKET, LONDON, S.W.

N.B.—When ordering from Wholesale Houses write LLOYD'S EUXESIS (WIDOW'S).

CALENDARS for XMAS &
NEW YEAR

AND
ADVERTISING NOVELTIES

Blotters, Booklets, Rulers, etc., etc., by our

SPECIAL ENAMELOID PROCESS
which is new and permanent. Any quantity.

*Enquiries should be placed NOW with the actual manu-
facturers. SAMPLES SENT FREE.*

THE ENAMO COMPANY, LTD.
CAXTON WORKS - - WIMBLEDON, S.W. 19

A satisfaction to you and a delight to your customers.



SELF-FIXING
HERMETIC
WASHABLE
BOTTLE CAPS
ARE
— ELEGANT —
— EFFICIENT —
— STRONGEST —
— CHEAPEST —
and BEST.
The **VISCOSSE**
Development Co., Ltd.
BROMLEY :: KENT

SEMREH SELF-FIXING
BOTTLE CAPS

THE EVAN WILLIAMS' EMULSIFIED COCOANUT OIL SHAMPOOS

in liquid form (2 sizes)

in powder form (packets)

They are well up to the Evan Williams' standard of production, sell freely, and give a handsome profit.

Write for "The Shampoo Salesman," which gives full details of all our Preparations.

THE EVAN WILLIAMS CO., LTD., 18 & 18a Ogle Street, LONDON, W.1.

The largest Shampoo Specialists in the world.

114% PROFIT!

AND EVERY LINE A QUICK SELLER

SPECIAL OFFER

to introduce new

EUCRYL TOILET PREPARATIONS

One dozen Tubes EUCRYL FACE CREAM	at 7s. od.	..	Retail at 12s. od.
One dozen Tubes EUCRYL VANISHING CREAM	at 7s. od.	...	Retail at 12s. od.
One dozen Tubes EUCRYL BRILLIANTINE	at 7s. od.	..	Retail at 12s. od.
One dozen Dainty Boxes EUCRYL FACE POWDER as bonus for Counter and Window Display and Cash with Order			Retail at 9s. od.

Total Cost 21s.	Selling at 45s.
Profit 24s.	= 114%

ALL OF FINEST POSSIBLE QUALITY.

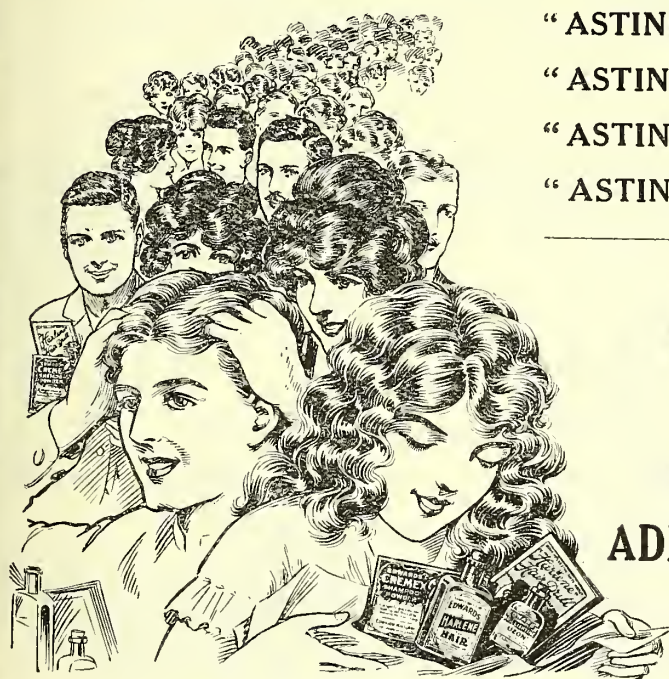
**EUCRYL LIMITED,
SHIRLEY, SOUTHAMPTON.**

WE Make New Customers for YOU

Watch the Great Free Gift Advertising of EDWARDS' HARLENE-HAIR-DRILL TOILET SPECIALITIES

FOR
30 YEARS
THE PREMIER
PREPARATIONS
FOR ALL TOILET
NEEDS

"HARLENE" FOR THE HAIR
"UZON" BRILLIANTINE
"CREMEX"
SHAMPOO POWDERS
"ASTOL" FOR GREY HAIR
"ASTINE" VANISHING CREAM
"ASTINE" TOOTH CREAM
"ASTINE" SHAVING STICK
"ASTINE" NAIL CREAM



A Great Summer
Holiday Demand
is Anticipated.

HAVE YOU GOT
ADEQUATE STOCKS?
IF NOT
ORDER NOW.

FOR PARTICULARS, TERMS, ETC., WRITE—

EDWARDS' HARLENE LIMITED

20, 22, 24 and 26 LAMB'S CONDUIT STREET, LONDON, W.C.1.

Pure

MARGERISON'S

Fragrant

WHITE WINDSOR SOAP



HEIGHT - 14½"
 WIDTH - 10½"
 WEIGHT - 8lbs.

Introduced to the public more than 50 years ago. The splendid value is emphasised by the fact that our sales are continually increasing.

If you have not tried this line please write for SAMPLES, also particulars of our FREE OFFER of Bust of H.R.H. The PRINCE OF WALES (as per illustration) modelled in this very fine soap.

1-lb. and ¼-lb. pieces packed in elegant cartons.

Economical

J. MARGERISON & CO.,

Toilet Soap Manufacturers,
 White Windsor Soap Works, PRESTON.

Cleansing

PRICE'S
 Old English
 Lavender
 Soap

Price's
 Old English
 Lavender Soap
 Price's - LONDON - PARIS.

MR. CHEMIST

We are just commencing to
advertise and are selling**"LILLEEN"**

A PERFECT LIQUID SKIN BEAUTIFIER.

Delicately perfumed. Contains no Grease, no Glycerine.
Will uphold all our claims and can be safely recommended.ONE MINUTE AFTER USING leaves the hands dry, amazingly
soft, and the most delicate fabric can be handled without fear of stain.SPECIMEN OF LABEL.
(Gold Lettering on Pale Green.)Approved by West End Stores
:: and Noted Manicurists. ::We ask your immediate co-operation so that
commencing sales may not be lost to our
mutual disadvantage.

In three sizes:

Retail	5/-	2/6	1/3 each
Wholesale	40/-	20/-	10/- per doz.

Your Profit 33 $\frac{1}{3}$ % on selling Price.

Supplies from your Wholesaler:

TRUSENT CO., LONDON, W.11.**POWDER PUFFS**

Our creations in this line are acknowledged to be **UNIQUE**, and wherever shown they appeal to the lady of refinement because of their **ORIGINALITY** of design.

Our Novelties are packed singly in round fancy boxes and bear our gold seal "**ROSETTE**" with device of basket of roses, which stands for Quality and High-class Workmanship. One dozen boxes are packed to the carton, which packing is most convenient for Shipping. Manufactured throughout by **BRITISH LABOUR** in our own workshops under ideal conditions, our Powder Puffs are demanded practically the **WORLD OVER**.

Markets still open include **The EAST, The UNITED STATES OF AMERICA and SOUTH AMERICAN STATES**. We kindly invite enquiries from Merchant Shippers catering for these countries confident that there need only be a few of our novelty puffs shown to create a large demand.

J. R. BOURLAT, GOES & CO.,

Manufacturing Specialists in Fancy Powder Puffs to the Wholesale and Shipping Trade ONLY.

22 Princes Road, Holland Park, LONDON, W.11.
Telephone Nos. : PARK 340 & 2592.**The better printers
specialise—**

In printing, fast work is economical work, and the advantages in price and quality which we offer will prove it to you.

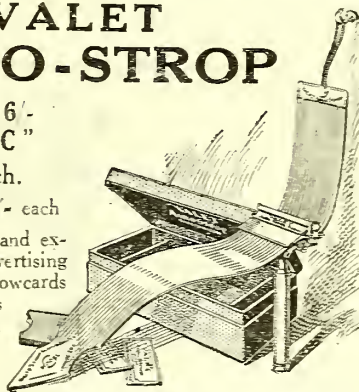
If you are large users of

BAGS, LABELS, CARTONS or WRAPPERS for Soap, Medicines, Drinks, or any similar proprietary article, it will pay you to ask us for quotations. We have no outside representatives, but we can send you specimens of work.Write
Dept. C.**THE BERKSHIRE PRINTING CO. LTD.**
KING'S ROAD, READING.**VALET
AUTO-STROP**The New 6/-
Model "C"

4/6 each.

Dozen lots 4/- each

Enormous demand expected. Advertising matter and showcards gratis. Orders executed in strict rotation

**GILLETTE RAZORS**

Army Surplus, with 1 blade.

Imperfect 21/- doz. Perfect 24/- doz.

GILLETTE BLADES

Genuine U.S.A.

1 box. 35/10 10 boxes. 34 2 per box.

All previous quotations cancelled.

All orders over £1 less 2 $\frac{1}{2}$ % discount for cash.**H. A. CANNON, 41 High Holborn, W.C.1**

The Tooth Brush in the YELLOW BOX



The sanitary YELLOW Box identifies to an ever-growing number of users "the only tooth brush that really cleans the teeth"—the Pro-phy-lac-tic, as manufactured by the Florence Manufacturing Co. of Florence, Mass., U.S.A.

Our continuous advertising to over 4,000,000 readers of the Press is creating more customers for this high-class tooth brush every day. Don't fail to make some of those new customers yours. Display the

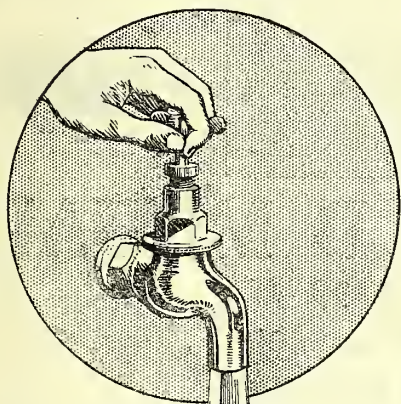
Pro-phy-lac-tic Tooth Brush

GENUINE only in the **YELLOW Box**.

In 3 sizes—adult's, youth's, and child's ; in 3 textures of bristles—hard, medium, or soft ; one quality only—each in its individual YELLOW Box, with hook for hanging.

Price to the Public - - - **2/6**
To the Retailer—a *Full Trade Profit*.

SOLD THROUGH THE WHOLESALE HOUSES ONLY.
Wm. E. PECK & CO., Inc., 31 Bartholomew Close, London, E.C. 1.



Increasing the Business Stream

There's a deal of truth in the well-worn motto "Nothing succeeds like success"—and it aptly explains the phenomenal rise in sales of Gibbs Preparations.

To begin with, they are *right*—exactly what the consumers need—exactly what they expect—and the prices are right. Then we tell the public all about them—in plain, straightforward, reasonable advertisements carefully spread throughout the country. By means of numerous dealer-helpers your Pharmacy is linked with the advertising—thus the consumer is given a mental prod right on your very doorstep.

Mark this in the case of our leading lines, Gibbs Dentifrice, we are not merely weaning consumers from one line to another, but opening up entirely new business by our vigorous Dental Hygiene Propaganda work. This means *more* profit to you.

In our Free Gift Birthday-scheme just completed you have evidence of the wonderful effect of our sales efforts to increase the stream of business in our products—Look around your Pharmacy and ask yourself—"Are you getting your full share of our business?" "Do you make the utmost use of our dealer-helpers?" then ACT!

D. & W. GIBBS LTD. (Dept. S21)
City Soap Works, London, E. 1.

Gibbs Dentifrice

and Toilet Preparations



BIDWELLS' GOLD MEDAL "GLORIA" REGD. TOILET BRUSHES



Tooth, Hair, Nail, Cloth, Hat, Flesh, Shaving.

Castle Mills, Axminster, Devon.

London Office : 6 East India Avenue, E.C.

Get the "Sales Repeat" Value of Your Calox Display

BY displaying the Calox carton prominently on your counter, you can vastly increase your sales of the "Oxygen Tooth Powder." Many chemists report that, since adopting this practice, their sales of Calox have increased anywhere from 100 to 400%.

Calox makes satisfied customers who come back again and again. Because it is absolutely dependable for cleaning, whitening and beautifying the teeth. Makes a "c.p." mouth.

This means increased profit for you—in quick ready sales. Look over your stock *now* and place an order for this best of all dentifrices.

Manufactured only by

McKESSON & ROBBINS

INCORPORATED

91 Fulton Street, New York, U.S.A.



Specify when ordering :—

"ENGLISH PROPHYLACTIC"

"ADDIS in the Blue Box"

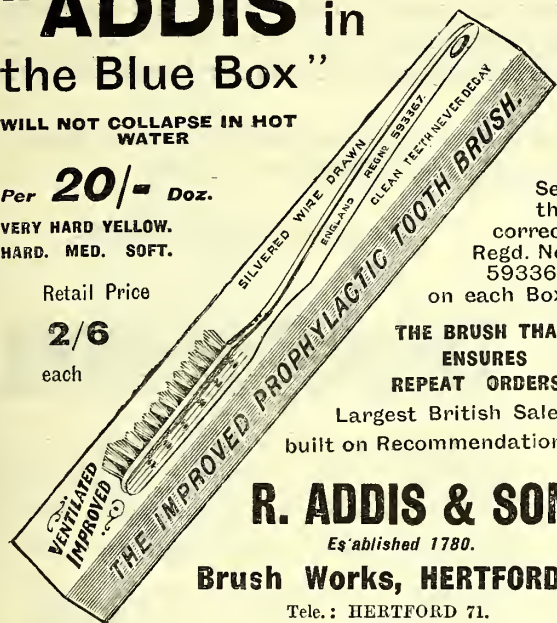
WILL NOT COLLAPSE IN HOT WATER

Per **20/-** Doz.VERY HARD YELLOW.
HARD. MED. SOFT.

Retail Price

2/6

each

See
the
correct
Regd. No.
593367
on each Box.**THE BRUSH THAT
ENSURES
REPEAT ORDERS.**Largest British Sales
built on Recommendation.**R. ADDIS & SON**

Established 1780.

Brush Works, HERTFORD.

Tele.: HERTFORD 71.

**OLDEST FIRM OF TOOTH BRUSH MANUFACTURERS
IN THE WORLD.**

Sold by the following Wholesale Druggists :—

LONDON.

Amor, W. W., Son & Co.
Barclay & Sons, Ltd.
Butler & Crispe
Baiss Bros. & Co.
Britton, Malcolm &
Waymark, Ltd.
Bourne, Johnson &
Co., Ltd.
Geo. Curling, Wy-
man & Co.
Dakin Bros., Ltd.
Edwards, W., & Son
Ferber, Robt., Ltd.
Galen Manufacturing
Co., Ltd.
Hewlett, C. J., & Son
Ltd.
Healey, Royle & Co.
Hay, J. B., & Co.
Higgins, G., & Co.
May, Roberts & Co. Ltd.
Newbery, F., & Sons
Ltd.
Osborne, Garratt &
Co., Ltd.
Reuter, R. J.
Rippin, J.
Sangers [Ltd.
Schutze, F., & Co.,
Solport Bros.
Sutton, W., & Co.
Taffs, H. F., & Co.

BIRMINGHAM.

Parton, Son & Co.,
Ltd.
Southall Bros. &
Barclay.

CARDIFF.

Newbery, F., & Sons,
Ltd.

GLASGOW.

Burns, Petrie & Co.
Lorimer & Moyes, Ltd.
Munro, M' Laren &
Sutherland

LIVERPOOL.

Ayrton, Saunders &
Co., Ltd.

MANCHESTER.

Clunie & Co.
Chemists' Sundries,
Ltd.

Harper, C. W.
Harrison, Chas., &
Sons

Heath Bros.
Millner, R. M.
Place & Co. [Ltd.
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Woolley, Sons & Co.
NEWCASTLE.

Hall Forster & Co.
Ltd.

WARNING. The "PROPHYLACTIC" TOOTH BRUSH, manufactured by

ROBERT ADDIS & SON, is protected by law: Reg. No. 593,367.

We have instructed our solicitors, on and after June 1, to take action against any person manufacturing or selling by wholesale or retail, brushes infringing our rights.

Chemists having any doubtful stock should return same to the firm they have purchased them from, unless bearing Reg. No. 593,367.

**NITS****BINNS'S "Silver"
NIT Comb (Unrivalled)**Equally useful for removing
NITS from the hair or as a
Dust Comb for grown-ups.The Comb of the moment for
School Medical Inspection work.

Send for particulars to the Sole Maker.

GEO. A. BINNS, Archer St. Mills, HALIFAX.
SUPPORT BRITISH INDUSTRY. (The only address.)Always look for this black on
box containing Comb.
NO COMB GENUINE WITHOUT IT.**SHADEINE****FOR COLOURING GREY HAIR**This popular article is largely advertised
and stocked by all Wholesale Houses.
Trial Size 8d., per post 11d. 1/4 size, per post
1/6; 2/6 size, per post 2/11; 3/9 size, per post 4/6;
5d. size, 6/- doz.; 1/4 size 12/- doz.; 2/6 size,
24/- doz.; 3/9 size, 36/- doz.**THE SHADEINE CO., 58 WESTBOURNE GROVE, LONDON, W.****The EVAN WILLIAMS****Always in Great Demand.
Price List on Application.****The Evan-Williams Co., Ltd., 18, Ogle Street, W.I.****Original Henna SHAMPOO****Alcohol for Industrial Purposes
Duty-Free Spirit.***The Industrial Spirit Supply Company, Limited.***Agents: HONEYWILL BROS., Ltd., 79 MARK LANE, LONDON, E.C.3.**

*Use
Good
Bottles*

CHEMISTS and Druggists demand bottles accurate in capacity and graduations. There are no better bottles produced than those from the U.G.B. factories, which are the largest and most complete in Europe.

We can supply the trade with medical flats, vials, heavy cannons, $\frac{3}{4}$ -panels, blakes, brilliantines, etc. etc.

We invite your enquiries.



UNITED GLASS BOTTLE
MANUFACTURERS • LIMITED

Comprising :

Cannington, Shaw & Co. Ltd.; Nuttall & Co. (St. Helens) Ltd.; Robert Candlish & Son, Ltd.; Alfred Alexander & Co. Ltd.; E. Breffit & Co. Ltd.; United Glass Bottle Manufacturers (Charlton) Ltd.

Head Office : 40/43 Norfolk Street, Strand, W.C. 2.

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USE GOOD BOTTLES

A. Ruch & Co.

ESTABLISHED 1880.



G. GRANT FORSYTH.
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GLASS BOTTLES

of every description.

ENQUIRIES INVITED

28 Martin Lane, Cannon St., London, E.C. 4.

Telegrams : "Sennock, Cannon, London." Phone : Central 4799.

C. MELIN & CO.

ESTABLISHED 1865.

7 INDIA ST., CRUTCHED FRIARS,
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VACUUM FLASKS
MEDICAL FLATS
GLASS AMPOULES
TUBES

PUSH-ON CAPS
AND CORKED

BOILING FLASKS
AND BEAKERS

DRUGGISTS' GLASS
FILLERS OR FUNNELS

DIRECT FROM THE WORKS.
WHOLESALE AND EXPORT.

TOOGOOD'S BRILLIANTINES

IN
ASSORTED ODOURS.



2388

NON-SEPARABLE.

1 oz. ...	4/9 doz.
2 " ...	7/- "
3 " ...	9/- "
4 " ...	11/- "

SEPARABLE.

1 oz. ...	5/3 doz.
2 " ...	8/- "
3 " ...	10/6 "
4 " ...	12/6 "



2963

NON-SEPARABLE.

3 oz. ...	9/- doz.
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SEPARABLE.

3 oz. ...	10/6 doz.
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SHOW CARDS
and
CUSTOMER'S NAME

free on 3 doz. of a style
assorted sizes.



3394

IN OVAL GREEN ENAMELLED
TINS.

7/6 doz. 84/- gross.

Write for full illustrated list and specimens of labels.

Telephone:
HOP 4170
(2 lines).

WILLIAM TOOGOOD LTD.
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LONDON, S.E.1.

Telegrams:
"TOOGOOD,
BOROH,
LONDON."



*The Sign of
Satisfaction.*

CLEAN bright negatives, crisp brilliant prints, rich deep velvety enlargements—these are the qualities which sell more photographic sundries—they are the qualities you always get when you send your Amateur Finishing Orders to us. Send a trial order now and criticise it! Remember a satisfied customer is your best advertisement—it is ours too!

The Express Developing Co.,
296 HIGH ROAD, STREATHAM, S.W.11.

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DEVELOPING & PRINTING

Prompt Delivery. Best Workmanship.

Metropole Studios, The Hayes, Cardiff.

BOOKS FOR PHARMACISTS.

Send us a postal card and we will send you a 32 page catalogue of professional and business books for pharmacists, and a copy of

"THE SPATULA"

an illustrated monthly magazine for druggists, full of American snap and enterprise.

THE SPATULA, BOSTON 14, MASS., U.S.A.

**D. AND P.
SERVICE**

For the LIVE KODAK DEALER.
Same Day Return—Finest Results.
PRICES RIGHT—PROFITS RIGHT.
Write for Lists to—

WALLACE HEATON, LTD.
Change Alley - SHEFFIELD

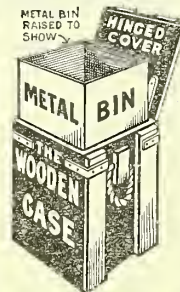
**GOVT.
SURPLUS.**

YOUR

LAST CHANCE.

Biggest Bin Bargain on Record!

4/3 each 6 to 12 4/-
complets. 24 to 50 3/9



Unused—Sound Condition. As shown—big bargain! Wooden Case—20 1/2 by 17 by 17. Inside removable Metal Case. Holds nearly cwt. corn—rat-proof—painted, hinged cover. Immediate despatch. Don't miss them!

The Lewis Service (23),
23 Waverley Road, Relland, BRISTOL.

DEVELOPING & PRINTING
CHEAPEST & BEST. 24 HOURS' SERVICE.

Developing Roll Films

All sizes up to—	Printing
1/2-plate, 6 or 8 exposures, 4d.	All sizes up to—
Postcard and 5×4 ... 5d.	3 1/2 × 3 1/2 1/2 per doz.
1/2-plate and 7×5 ... 8d.	4 1/2 × 2 1/2 1/5 "
12 exposures, 50 % extra	1/2-plate 1/8 "
	Postcard ... 1/11 "

POSTCARD ENLARGEMENTS

1 dozen from the same negative—
B. and W., per doz., 2/- Sepia, per doz., 3/-

SHAWYER & CO., SWINDON, WILTS.

'Developprint'

THE DEALER'S SERVICE

Spools developed, perfectly printed, and posted back same day. Enlargements three days. Send trade card for descriptive pamphlet and price list, mentioning "Chemist & Druggist."

GERALD MORRIS
KODAK SPECIALIST
ROCHESTER



"BEATSON'S"

**A. D.
1751**



*The House
for
Chemists' Bottles*



BEATSON, CLARK & CO.
LTD.
**GLASSWORKS,
ROTHERHAM.**

QUALITY FIRST!

IT is just as important that the photographic work handed to a customer by a chemist should be as perfectly executed as the dispensing of a prescription.

Carelessly developed films and badly done prints ruin the prestige that every chemist values so highly.

We have one of the largest businesses in the country for

DEVELOPING, PRINTING and ENLARGING.

This has been built up by a rigid adherence to the principle of doing first quality work only.

AND IT COSTS YOU NO MORE.

It certainly takes a little more time to properly fix and wash the films and prints, and it takes more time also to check every print and see that none but perfect ones go out.

But it is worth it in the long run, and the very large number of chemists whose photographic work we do, appreciate that fact.

We offer our services to all chemists who wish for first-rate work and we welcome orders from those who have only an occasional spool to send.

PLEASE SEND FOR OUR NEW PRICE-LIST.

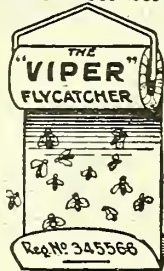
THOMPSON & CAPPER, Ltd.
Photographic Operating Department,
**MANESTY BUILDINGS, COLLEGE LANE,
LIVERPOOL.**

Telegrams: "SANITAS, LIVERPOOL."
Telephone: ROYAL, 2060 (Private Branch Exchange).

THE
"FLYSAC"
Reg. Trade Mark
Pat. No. 20631-1922



THE
"VIPER"
Reg. Trade Mark
Pat. No. 566-1923



In
three
sizes:
2 in.
3 in.
4 in.

Best . . . and pay you best.

FLYSAC and VIPER Flycatchers please users and encourage the Flycatcher habit. They command better prices and carry better profit than low-grade kinds.

Write now for samples and New Season Prices.

From all Wholesalers and the Sole Makers,

KAY BROTHERS Ltd., STOCKPORT.

**Continuous and Steadily Advertised Goods
FOR DESTROYING RATS AND MICE**

DANYSZ VIRUS

Retail Prices (protected). Net Wholesale Prices.
Virus for Rats and Mice, single tube, 2/- ... 15/- per doz.
3 tubes, 5/-
Virus for Mice only - single tube, 1/6 ... 9/-
3 tubes 3/-
Date-expired tubes returned to us postage paid will be exchanged free of charge.

Danysz Virus in Liquid Form

Retail Price. Wholesale Price/
Quart Bottles 6/- each ... 4/6 each
Pint " 4/6 " ... 3/9 "

HALLER'S EXTRACT OF SQUILL

and DANZO RAT KILLER

Discount off Retail Prices 25% Monthly Account, or 33% cash with order.

	Retail	Monthly a/c	Cash with order
1/2 gall. tins	10/-	7/6	6/8
1 " "	18/-	13/6	12/-
5 " "	80/-	60/-	53/4

DANZO BEETLE POWDER

For destroying Blackbeetles, Cockroaches, Crickets, &c.
Retail Prices (protected). Wholesale Prices per Doz.

In tins 3d.	In boxes of 2 doz.
6d.	1 " 3/8
1/-	1 " 7/5
2/6	1 " 18/-

Danzo Beetle Powder will not deteriorate by keeping.

CARRIAGE PAID ON ALL ORDERS.

To be obtained from

HALLER LABORATORIES, LTD.,
325 Borough High Street, LONDON, S.E.1

Telegrams: "Virudana, Sedist, London."

Telephone: Hep 2717.

In
Packets

@

5d., 9d. & 1/3
each.
(P.A.T.A.)

FOR QUICK CLEARANCE OF RATS AND MICE

YOU MAY CONFIDENTLY RECOMMEND

BATTLE'S VERMIN KILLER

Prepared only by BATTLE, SON & MALTBY, Manufacturing Chemists,
LINCOLN.

Of all
Patent
Medicine Houses

@

3/-, 5/6 & 9/-
doz.

TINS

The NORTH LONDON TINWARE Co., Ltd.

Cronwall Street, Hoxton, LONDON, N.1

Manufacturers of

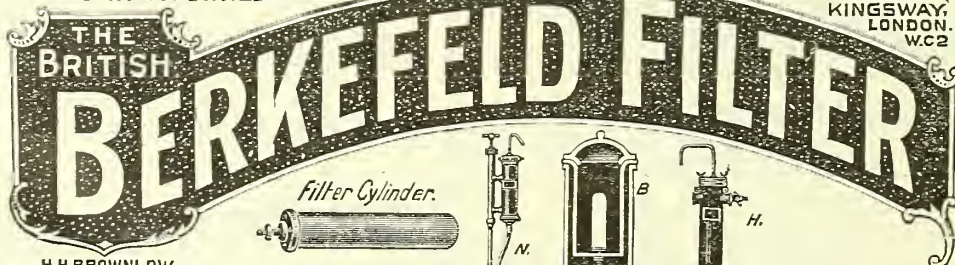
TIN BOXES and CANISTERS FOR INFANTS' FOOD, PETROLEUM
JELLY, AND OTHER ARTICLES.

Round and Square TIN BOTTLES, PLASTER CASES, &c.

Cardboard Boxes and Composite Containers.

Telephone: 2466 Central.

BRITISH OWNED.

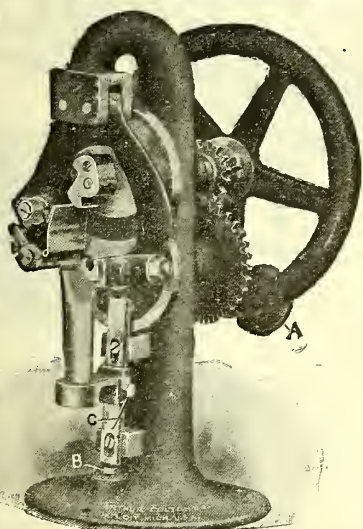


H.H. BROWNLOW.
R.S. BROWNLOW.

SARDINIA HOUSE,
KINGSWAY,
LONDON.
W.C.2

COLTON

PHARMACEUTICAL MACHINERY



HAND TUBE CLOSER.

THE Hand Tube Closer is made in two Sizes, to take tubes of diameters ranging from $\frac{1}{4}$ " to $1\frac{1}{2}$ " and has a capacity of 15 tubes per minute. The operation of the machine is very simple—two revolutions of the hand-wheel producing a neat and effective seal.

Where a more permanent sealing of the tube is required, we recommend the use of a Foot Power Closer and Nickeloid Clips.

Full particulars of the machines and samples of Clips sent on application.

Please send us samples of your tubes so that we may demonstrate the effectiveness of Nickeloid Clips.

Sole
British
Agents:

JOHN J. GRIFFIN & SONS, LTD.
Kemble Street, Kingsway, LONDON, W.C. 2.

BOTTLE WASHING MACHINES

To suit every description of Bottle.

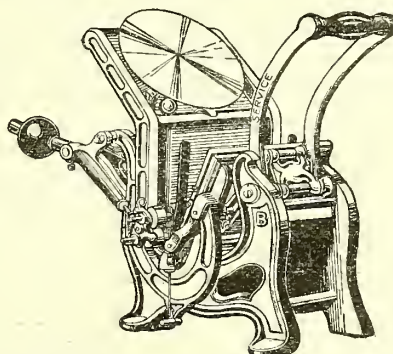
DAWSON BROS., LTD.

THE WORLD-RENOWNED
BOTTLE-WASHING MACHINE MAKERS,
VENTNOR WORKS,
GOMERSAL, NR. LEEDS.

WRITE FOR COMPLETE CATALOGUE.

LABELS IN SMALL QUANTITIES.

Print your own and save money. This can be done in your own Office with a "SERVICE" machine at minimum cost. You need no technical knowledge.



The Price is only £10 10 0 and the machine needs no upkeep.

PRINTERS' SUPPLY SERVICE Ltd.
57 Farringdon Street, London, E.C. 4.

Phone: City 2489.

NOTHING

BUT

ALL THESE PROMINENT
PEOPLE USE AND HIGHLY
RECOMMEND THESE TRULY
REMARKABLE PRODUCTS

ALKIA SALTRATES

A Widely Advertised and quick selling Saline for LIVER, KIDNEY AND RHEUMATIC DISORDERS, GOUT, Etc. Represents the maximum of possible efficiency in a Saline and the best value for the money. There is no trace of any salty, sour or otherwise unpleasant taste.

**You Can Stock These Rapidly Moving Lines
on GUARANTEED SALE TERMS.**

Carriage Paid in United Kingdom on orders for 3 dozen, which may be assorted.

Show Cards of strong selling power sent free on request. Display them in your window and attract extra business from our present extensive advertising campaign.

COMPOUNDED UP TO A STANDARD (the highest possible) NEVER DOWN TO A PRICE—these lines are as near perfection in their respective fields as it is humanly possible to get them, regardless of cost or selling price. Your customer requires no persuasion after he has once given our preparations a trial. He then **KNOWS** they are just what he wants and is interested in no others. In other words—after you make the first sale these goods go on selling themselves.

EVIDENCE THAT



Sells
GEO ROBEY
at
3/3
P.A.T.A.

SALTRATES LIMITED, Euston

ON ALL SIDES

**MUST
CONVINCE**

**YOU, Mr. Chemist, can
Recommend these Goods with
ABSOLUTE CONFIDENCE
Every Sale means a pleased
and satisfied customer.**

REUDEL BATH SALTRATES

The Best Selling and most fragrant, refreshing and all-round satisfactory preparation for the Bath and for General Toilet purposes. Especially recommended in cases of FOOT TROUBLES, RHEUMATIC PAINS, STIFFNESS, STRAINS, SPRAINS, Etc.

Always being extensively advertised.

Sells

at

2/8 3/3

P.A.T.A.

CONSTANCE
WORTH

OSWALD
WILLIAMS

DUKE
ENSON

THOUSANDS OF COMMENDATORY LETTERS ON FILE AND OPEN TO EXAMINATION BY ANYONE.

Members of the medical profession, trained nurses, prominent business men, famous actors and actresses, men well-known in the Army, Navy and Sporting World and all walks of life are amongst the thousands of correspondents who have written us praising Saltrates in the highest possible terms after having experienced the remarkable curative effects. The ethics of the medical profession do not permit our making public any physicians' names but our files of other commendatory letters are open to inspection by anyone at any time.

London, N.W. 1.

Telephone : Museum 3131 and 3132.

THE METHYLATING Co., LTD.

for METHYLATED SPIRIT.

38-41 Finsbury Court, Finsbury Pavement, LONDON, E.C.2.

Telephone: London Wall 6031.

Telegraphic Address: "Methcolim, Phone, London."



COMPLETE WORK, 2 Volumes, 1920-21, price 44/6 net, post free 45/-
VOL. I.—Separately 27/- net, post free 27/6.
VOL. II.—Now Published, 17/6 net, post free 18/-

THE EXTRA PHARMACOPŒIA

By MARTINDALE and WESTCOTT.

PRESS NOTICES.

"A unique vade-mecum alike for the medical practitioner and the pharmacist."

Pharmaceutical Journal.

"Well known and widely appreciated . . . one of the few books which medical practitioner, analyst, and pharmacist cannot afford to be without."—*Lancet.*

Descriptive Leaflet on application.

On the P.A.T.A. at face value

London: H. K. LEWIS & CO. Ltd., 136 Gower Street, W.C.1

Also of W. MARTINDALE, 10 New Cavendish Street, London, W.1.

Cellophane

What Is It?

CELLOPHANE

is a **transparent** film of pure Cellulose, **absolutely** air, grease, and odour proof, **unaffected** by cold, heat or moisture, and **sterilisable**.

An **ideal wrapping** for Drugs, Tablets, Bath Crystals, Perfumery, Provisions, Sweets, Surgical Dressings, Articles of Toilet, Sponges, etc. etc.

Will keep your Goods, Boxes, Bottles, and delicate Labels **clean** on the Counter and in Shop Windows, allowing the Articles to be seen **by transparency**. Can be had colourless, coloured and embossed.

Also in the shape of **Labels** for Bottles, and **Discs** for Creams, Ointments, Boot Polish, &c.

Cellophane Envelopes, printed or not.

Agents Wanted where not represented.

Prices, Samples and Particulars from

The CELLOPHANE COMPANY

(GUSTAVE LECLERCO),

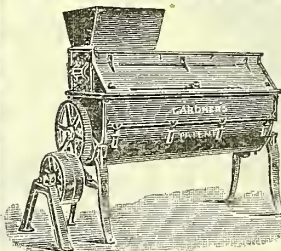
7, 8 & 9 Bird Street, LONDON, W.1.

GARDNER'S PATENT

"RAPID" SIFTERS & MIXERS

OVER 6,000

working in almost every Trade where **POWDERS** are Sifted and Mixed and **Lumps** Reduced, all being done at one operation and without loss by dust.



FOR HAND OR POWER.

CATALOGUES FREE.

WM. GARDNER & SONS (GLOUCESTER) Ltd.
Engineers, GLOUCESTER.

SHOWCASES

UPRIGHT CENTRE CASES, WALL CASES,
GLASS COUNTERS, MIRRORS,
WINDOW FITTINGS, GLASS SHELVES,
SHOW STANDS, DRAWERS, DESKS,
CHECK TILLS, &c. **Immense Stock.**
NEW and SECOND-HAND.

Ready for Immediate Delivery.

For Sale or Hire.

FREDERICK MAUND,
169 Old St., LONDON, E.C.1.

GUARANTEED TO CARRY A COMBINED WEIGHT OF 400 lbs.

"GELERT"

MODEL C. Tradesmen's Carrier Cycle (STRONGEST ON EARTH). We give you an opportunity of buying the finest Carrier Cycle made, at NEAR COST OF PRODUCTION.

Originally £18 18s.,
now offered at....

£12 10s. Cash,

with our well-known Guarantee, complete with Basket, two Nameplates lettered in two colours to your own design or specification, and sent Carriage Paid.



Built to the order of Messrs. DEAR & MORGAN, Special Appointment to King George, Cowes, I. of W.

This is our best Model, and is assembled with the finest component parts to be had on the market for strength and durability, irrespective of price. It has been designed and built to combat the abuse given it by the average messenger boy, and includes many improvements not shown on any other Carrier Cycle, i.e.—Double Front Forks, Motor Fork Crown and Front Hub, Wheels built up with Heavy Gauge Unbuckable Rims and Piano Wire Spokes.

TUBULAR CARRIER BUILT ON THE FRAME WITH SOLID STEEL LUGS. (Independent Steering.)

SPECIFICATION :

FRAME.—Special Heavy Gauge Tubing, mitred and pegged. FORKS.—Duplex Heavy Gauge for Carrier work. TYRES.—Warwick, Clipper, or Bates' Heavy Carrier. BRAKES.—Front and Back Rim Roller, with fixed attachments. B.S.A.—Free Wheel and Coventry Chain. FRONT CARRIER.—Weldless Steel Tubing and built as part of the frame. WHEELS.—26 by 1 1/2, Enamelled Rims (heavy gauge). SADDLE.—Lycett L22, Girder Enamelled. FINISH.—Enamelled all Black, but Plated parts can be had if required.

OUR GUARANTEE.—We will allow you 7 days after receipt of Cycle to give you an opportunity of testing it, and should it not be up to your expectancy send it back, and your money will be promptly returned, together with amount of return carriage.

Contractors to the largest buyers of Carrier Cycles in the United Kingdom,

FREDERICK LLEWELLYN & Co.,
Litherland Works, Litherland Road, Bootle, Lancs.

£3,000 worth of orders for £26 10s.

A Leicester firm of Boot and Shoe Manufacturers writing to the "Christian Herald" in March, 1920, said :

"The result of the advertisement in only one issue has been so good that it surprised us; we have been so rushed with orders that in a few cases we have not been able to supply yet. The £13 advertisement has brought nearly £200 worth of satisfied customers from the British Isles, Shetland and Orkneys, Jersey and Guernsey, etc." A further letter from the same firm dated January 1st, 1921, says: "The total business done from our original advertisements in February and March, 1920, runs into over £3,000 to date. The original advertisements cost £26 10s."

Messrs. The British Vacuum Washer Co., Waterloo Road, Liverpool, in a letter to the "Christian Herald," dated February 17th, 1921, say: "We have great pleasure in bearing testimony to the splendid pulling power of your valued paper. We do not make a rule of writing testimonials, but we feel it to be our duty to do so in this case. We have been advertising in the "Christian Herald" for a considerable time, and the very large number of orders which we have received bears eloquent testimony to its value as an advertising medium."

A firm of Manufacturers' Agents, writing on Sept. 30th, 1921, say: "The advertisement has proved quite satisfactory," and in giving instructions for their advertisement to be continued, say:

"We find missing a week is very detrimental to us."

Another firm in North of England has had to apologise to "Christian Herald" readers "owing to enormous demand having temporarily depleted their stock."

It pays to advertise in the "CHRISTIAN HERALD."

For Specimen Copy and Rate Card apply to—
The Advertisement Manager, "CHRISTIAN HERALD,"
6 TUDOR STREET, LONDON, E.C.4.

The "ROLO" FLY - CATCHER

The 'Best Seller' of the Summer Season.

Neat and attractive in appearance, clean to handle and easy to open (the fingers cannot come in contact with the gum), the "ROLO" is at once both useful and ornamental.

Evenly spread on both sides with our special non-drying gum, it is also very highly effective, being, in short, the ideal Cemetery for Flies!

The Medical Profession have been recommending the "ROLO" for over 20 years.

The War Office, too, bought large quantities for the use of the troops in Mesopotamia & Salonica.

Made in two SIZES, 1d. & 1 1/2d.

STONEHOUSE Bros.
High St., Old Basford, NOTTINGHAM

TO SHOW IT IS TO SELL IT.

An exceptionally good profit, quick sale—and no risk of large stocks at the end of the season, as you can buy little and often, and have delivery within 36 hours by passenger train.

Send to-day for samples and prices, or order through your usual wholesale house.



PURE ORANGE WINE

A. MILLAR & CO., LTD., DUBLIN

(VINUM AURANTII B.P.)

Prepared in strict accordance with the Formula of the British Pharmacopoeia. (Wholesale only.)
Samples from Head Office, Thomas Street, DUBLIN, or London Office, 43 Great Tower Street, LONDON, E.C.3.

FRED^K. FINK & CO.,

10 & 11 MINCING LANE, LONDON, E.C.3.

SPECIALITIES.—Gums Arabic and Tragacanth as Imported or finely powdered.

PRECIPITATED CHALK

Lightest and Whitest, also Purest Dense

Aug. Levermore & Co., Ltd. 8-10 Gt. St. Helens, LONDON, E.C.3.

Telegrams: "Levermore London."

Telephone: Central 4613.

PRINTING

Are YOU satisfied with YOURS?

We were not, so now do our own. Can we do yours? Write for specimens and prices.

STAR WORKS, ST. MARY CRAY, KENT.

L. FRANKENBERG, 15 Stoney Lane, London, E.1.

STOCK for DISPOSAL.

HAIR CLIPPERS at 4/- each; Spikuson Razors 30/- doz.; Carnos Razors 30/- doz.; Alexico Razors 18/- doz.; Blades, three-hole 5/- grs.; Carnos Super-Blade 10/6 grs.; Shaving Brushes 7/6 doz.; Ladies' Combs 4/6 doz.; Crown and Sword Razors 24/- doz.; Safety Razors, boxed 6/6 doz.; Safety Razors, Nickel 6/- doz.; Enclin Tooth Paste 4/4 doz.; Shaving Sticks, Tins 2/9 doz.; Calvert's Tooth Powder 3/- doz.; 7 o'Clock Razors 5/- each; Auto Strip Razors 6/9 each; Gillette Blades 3/6 doz.

List Ready

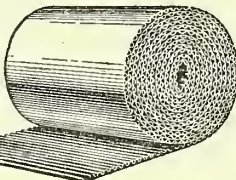
Net Cash

Post Free

Corrugated Rolls. Collapsible Boxes. Cartons. Greaseproof Corrugated. Tinted Corrugated.

Keenest Prices. Quick Delivery. Kindly ask us to quote.

The Guildhall Corrugated Paper Co.
Dept. CH. GUILDHALL BUILDINGS,
NAVIGATION ST., BIRMINGHAM.



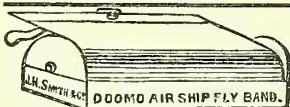
BRITISH MADE, ROUND AND SQUARE CARDBOARD BOXES

for
PILLS, POWDERS, SOAP, OINTMENT,
BOTTLES & CHEMISTS' ADJUNCTS.

Estd. 1850. Wholesale & Export only. Phone: 2505 Royal.

JAMES AUSTIN Ltd. 32 GREAT GEORGE SQUARE, LIVERPOOL.

DOOMO AIRSHIP FLY BAND



Write for quotations
A wide, long band,
sticky on both sides.

SMITH & CO., Doomo Works, NEWARK

HAUFF CHEMICALS

METOL and other of their well-known Products.
DRY PLATES.

Write for prices, etc., to the Wholesale Distributors:

HUNTERS, 65 Chancery Lane, LONDON, W.C.2.

Agents for Contessa Nethel Cameras.

BUY DIRECT

ELARCO RUBBER GOODS

The LONDON RUBBER CO. 183 Aldersgate Street,
LONDON, E.C.1.

TOOTH PASTES IN TRIANGLE CARTONS

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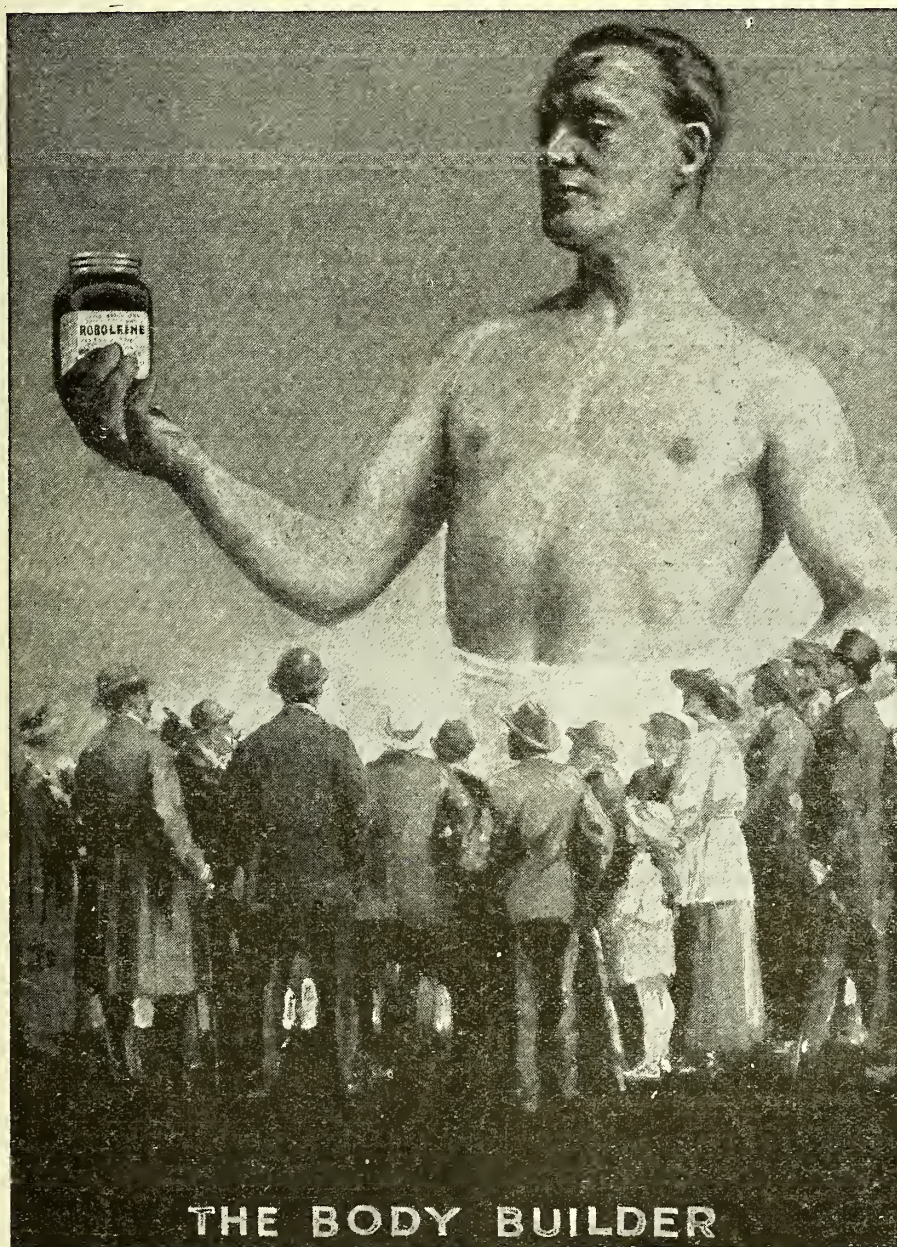
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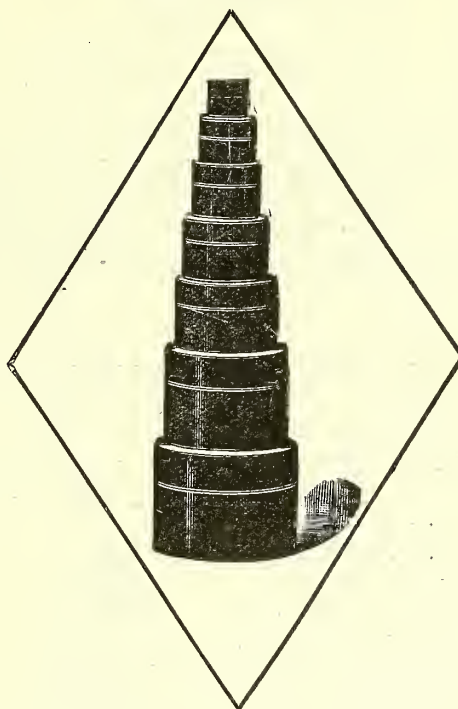
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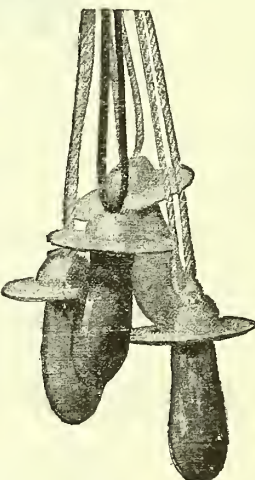
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is subscribed for regularly, and its advertising and editorial pages studied closely week by week by the heads of the Contract and Purchasing Departments at The Admiralty, The War Office, The India Office, The Navy, Army, and Air Force Institutes, The Office of the Crown Agents for the Colonies, The Government Public Health Departments, &c.

Enormous quantities of pharmaceutical, medical and surgical supplies are purchased annually for use in hospitals, infirmaries, asylums, dispensaries, prisons, &c., and in the Health Departments of municipalities and other local Government authorities. In this connection, those who direct or influence the buying and distribution of all such supplies find a weekly perusal of *The Chemist and Druggist* imperative.

For our subscribers include Medical Officers of Health, Superintendents, Governors, Stewards, Pharmacists, and Directors of the largest and most important Public Health Institutions in all parts of the United Kingdom. The list is much too long to tabulate, but in the metropolitan area alone 40 such institutions subscribe regularly, while in the larger provincial cities, such as Manchester, Liverpool, Birmingham, Glasgow, &c., the number of hospitals, infirmaries, asylums, &c., receiving *The Chemist and Druggist* varies from five to seven according to the size of the place.

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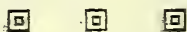


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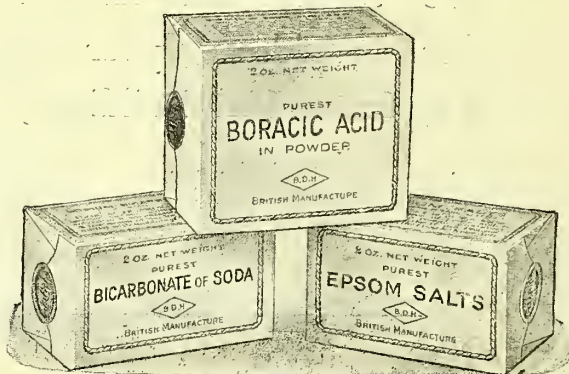
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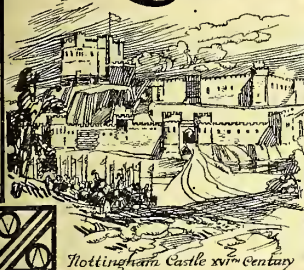
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The Chemist & Druggist

Conference Number

JULY 29, 1922

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Business Changes

MR. JAMES BERESFORD, late of Bruton, is opening a pharmacy at Henstridge, Somerset.

MR. E. PETERS, chemist and druggist, has opened a pharmacy at 29 Cromwell Street, Swindon.

MR. H. SPENCER, chemist and druggist, has taken over the business of Mr. H. J. Ferriday, chemist and druggist, 17A Larch Street, Southport.

MR. W. H. KENDREW, chemist and druggist, 50, Ash Street, Southport, has taken Mr. H. Orr, chemist and druggist, into partnership.

BOOTS, LTD., have acquired premises at 120 Southampton Row, London, W.C.1, where a branch will be opened so soon as the necessary alterations are complete.

Wills

MR. NATHANIEL STANLEY WHITE, chemist and druggist, of Earl Shilton, Leicester, who died on April 4, left estate of the gross value of £2,848 15s. 3d., with net personality £1,950 6s. 4d.

MR. RICHARD FOWLER CRAFTON, chemist and druggist, Brandon Lodge, Bramley Hill, Croydon, who died on May 26, has left £35,000 4s. 10d., the net personality being 32,812 14s. 7d. He gives £200 each to his executors, his 2½ per cent. Consolidated Stock to Elizabeth Georiana Crafton, his residence and furniture to his four nieces, Ruth Lilian, Marian Catherine, Mabel Caroline, and Alice Maud, or such of them as shall survive him, small legacies to servants, and the residue among his fourteen nephews and nieces.

English and Welsh News

The Editor would be obliged if subscribers would send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

British Pharmacopœia in Chinese

The Chemical Trade Section of the London Chamber of Commerce is appealing for subscriptions to a guarantee fund which is being formed for the purpose of defraying the cost of publishing an edition of the British Pharmacopœia in Chinese. The work will be carried out in conjunction with the British Chamber of Commerce in Shanghai, and is estimated to cost about £600 for the translation and printing. The work will be an abridged form of the British Pharmacopœia, with an appendix containing therapeutical notes. Forms of subscriptions to the guarantee fund can be obtained from the secretary of the Chamber of Commerce, Oxford Court, Cannon Street, London, E.C.4.

Horsehair and Anthrax

Giving evidence at a London inquest, on July 20, on the body of a man who died from anthrax, Dr. T. M. Legge, of the Home Office, said that anthrax is undoubtedly increasing, but the frequency is comparatively small, the largest number of industrial cases in a year being 105; last year it was about 40. Of this number not more than five or six would be due to horsehair, the remainder being contracted by the handling of wool, chiefly in Yorkshire. The Home Office Regulations requiring disinfection have diminished the risk to work-people in factories, although disinfection by chemical means is not always satisfactory. Steam disinfection has this difficulty—white hair is turned yellow, and long hair for weaving purposes is affected prejudicially. The Home Office has built at a cost of £100,000 a disinfecting station at Liverpool, and has prescribed certain wool that must undergo treatment. At the moment there is not the accommodation to treat horsehair. Dr. Legge added that it is from countries which are uncivilised in a Western sense, and in which no precautions are taken in the case of animals dying from anthrax, such as Russia, Asia, South Africa, and Persia, that the danger comes. There is no danger from Australia, New Zealand, and Canada. It is remarkable that more cases do not occur, for it would be safe to assume that not a single bale of hair from China is free from anthrax.

Contracts

The following tenders have been accepted by the bodies named:

Eastbourne Guardians.—G. A. Harmer & Sons, chemists, drugs.

Hertford and Ware Joint Hospital Board.—Mr. J. H. S. Lewis, chemist and druggist, Ware, medical sundries.

Leicester

Effective window shows have been arranged by J. Young & Sons and Mr. A. Davidson. The former, which is a particularly elaborate one, advertises cameras, and has proved an efficient salesman. Mr. Davidson's is a display of lime juice.

"One of our local pharmacists evidently saw the article which appeared in the *C. & D.* recently as to the possibilities of the sale of wireless apparatus as a sideline," writes a correspondent, "for now we see a window-display of crystal receivers, valve sets, inductance coils, etc., etc., and invariably a goodly number of interested persons."

The students of Leicester City Technical School recently paid a visit to the city gasworks, where the process of destructive distillation on the large scale was seen in operation. The different stages in the production of coal-gas—from charging the vertical retorts to the final entry of the purified product into the gasometers—were traced and fully explained. Methods of testing the illuminating and thermal properties of the gas were shown in the laboratory. Considerable interest was aroused in the separation of coal-tar into its various products by fractional distillation.

Liverpool

Mr. Harold Lomax is on holiday at Merecambe.

Mr. H. H. Marsden, Walton, has qualified for the medical profession.

Business shows renewed signs of recovery. Last Saturday's takings across retail counters were very good. The Aintree races gave a spurt.

Departures for the Nottingham Conference began at 8.30 a.m. on Monday. Some delegates could not leave business until Tuesday afternoon.

A suburban pharmacist had recently to send his errand boy home "gassed." The youth had drunk off the residue of the contents of the many soda-water syphons he collected.

Sheffield

The formation of a Sheffield Branch of the Pharmaceutical Society has been postponed until the October meeting of the local Society.

Mr. J. T. Appleton represented local chemists at the opening of the Sheffield Works' Convalescent Association's home, at Ashover, on July 20.

It is hoped that a means may be found of obviating the unjust competition of welfare-clinics, and with that object the chairman and secretary of the Sheffield Branch of the Retail Pharmacists' Union recently had an interview with the medical officer.

Among the "bargains" offered by the drug department of John Walsh, Ltd., during their summer sale are: Glycerin, 1s. 9d. 1-lb. bottle; Howard's seidlitz powders, 1s. doz.; Howard's Epsom or Glauber's salt, 4½d. lb.; Kent's four row tooth brushes, 6½d. each.

Miscellaneous

CHEMISTS' DEFENCE ASSOCIATION.—A meeting of the directors was held at 19 Tavistock Square, London, W.C., on July 19, under the chairmanship of Mr. Thomas Hardy. Ten shares in the company were transferred and sixty-four new ones allotted. The secretary reported on the claims made and cases settled since the last meeting.

SALE OF JENNER RELICS.—A series of seventy-two autograph letters (three incomplete), written by Dr. Edward Jenner, the discoverer of vaccination, has been purchased, for £410, by Burroughs Wellcome & Co. The firm has also acquired a parcel of autograph medical prescriptions, and a collection of nineteen pamphlets and papers relating to vaccination.

POISONINGS.—The following cases of fatal poisoning have been recorded since our last report: At Winchester, Maud Tapscott, a hospital patient, died from the

effects of drinking a quantity of lysol.—An inquest was held at Oldham, on July 24, on a woman named Hibling. It was stated by Frederick Hibling, who is alleged to have bigamously married the deceased, that he had purchased a quantity of oxalic acid and salt of lemon, of which both had partaken. Hibling was committed for trial on a charge of wilful murder.

LONDON CHEMISTS' GOLFING SOCIETY.—The Harker Prize was played for at Crews Hill on July 13, thirty-six competitors taking part. The result was a tie between Mr. W. Main and Mr. G. A. Mallinson. These two players met again to decide the winner and a second tie was recorded. Another nine holes were played, and Mr. W. Main had a narrow victory. Other results were as follows:—

W. Main	... 83—5=78	G. Deeth	... 91—9=82
G. Mallinson	94—16=78	A. Boyes	... 99—16=83
W. Duncan	... 95—16=79	L. Garratt	... 99—15=84
W. Attwood	95—16=79	M. Carmichael	97—8=89
W. Gray	... 91—9=82		

About forty players journeyed to Knebworth recently to take part in the competition for the prize presented by D. & W. Gibbs, Ltd., the winner being Mr. F. A. Bell (two up on bogey), after a tie with Mr. J. Turner. A match then took place between the English and Scottish members, with the following result: England, 9½ points; Scotland, 5½ points. For England the following scored: Messrs. Trick, Gibbs, Owen, Turner, Bell, Read, Jones, Parry, Epps, and Longstaff. For Scotland: Messrs. Macdonald, Macrae, Forbes, Ballantyne, Beattie, and Marshall.

IN THE COURTS.—At Coalville Police Court, Arthur Box (14), errand boy, was placed on probation, and his father ordered to pay a fine of two guineas, for a series of thefts. From the evidence of Mr. Francis Brunt, chemist, Coalville, the lad had been in his service for some months, during which time several sums of money were missed. The police evidence showed that the sum of £4 2s., all the money stolen from Mr. Brunt, was found in a hole on a railway bank, together with sums of money which the lad said were the proceeds of other robberies.—At the North London Police Court, on July 25, Mr. V. R. de Boissière, described as a French-Canadian, was summoned for putting up a brass plate at his residence at Dartmouth Park Hill on which he unlawfully described himself as a veterinary surgeon. Sir Alfred Callaghan appeared for the Royal College of Veterinary Surgeons, and admitted that the defendant was in possession of a Canadian veterinary diploma, but that did not permit him to practise in this country until he got on to the roll of the College. The defendant said that when he left the Army he was told that he could practise as a veterinary surgeon. He was going up for his final degree on Wednesday. The magistrate said there would be no conviction, but Mr. de Boissière must pay £5 5s. costs.—At Kingston-on-Thames Police Court, on July 26, a milkman, F. Pavey, was summoned for selling cream containing 0.01 per cent. of formaldehyde. There were other summonses for selling and not labelling. The Surrey county analyst, Mr. Edward Hinks, in the course of his evidence, stated that formaldehyde was rarely found in cream owing to its difficulty in detection. Under the Cream Order only hydrogen peroxide and boric acid were allowed as preservatives. Fines were imposed amounting to £4 and £5 5s. was allowed for costs.—At Marlborough Street Police Court, London, on July 26, a Greek woman, Tinovia Iassonides, was sentenced to six months' imprisonment with hard labour, fined £200, and recommended for expulsion for being an unauthorised person in possession of cocaine at Church Street, Soho, and also at Stanhope Terrace, Camden Town. It was stated by the police that two ounces of cocaine was found in defendant's possession. Another girl, Frances Benjamin, was remanded on a similar charge.

Irish News

Pharmaceutical Society of Ireland

The following are the results of the recent examinations:—

PRELIMINARY EXAMINATION.—Wm. Alexander Hill, Londonderry, passed with Honours. The following also passed:—Fionnuala Mary Flood, Dublin; Thomas Wilfred Griffiths, Dundalk; (Eileen Byrne, Wicklow; =Jane Eleanor McMullen, Ballymena); (Charles Gilmurry, Dublin; =Patrick Meade, Drogheda); Andrew Kildea, Tydavnet, Co. Monaghan; Elizabeth Taylor McCoubrey, Belfast; James Mangan, Ballysillery, Ballina; Michael John McMahon, Dublin; Mary Casserly, Dublin; Eva Philippa Wright, Balbriggan; Arthur Charles Cecil Evans, Dublin. Eleven candidates were rejected.

PHARMACEUTICAL LICENCE EXAMINATION.—David John Patterson, Newtownards, and Thomas James Barrett, Abbeyfeale, passed with honours. The following also passed:—Sophie Hosford, Exeter; John Christopher Loughnane, Dublin; Wm. Samuel Black, Lurgan; Edward Joseph Nolan, Tullow; Eileen Mary West, Dublin; Elizabeth Mary O'Flanagan, Thurles; Hugh McGalliard, Belfast; Reginald Albert Edward Simmons, Londonderry; Patrick Aloysius Ussher, Dublin; Francis Michael Hartnett, Kenmare. Twelve candidates were rejected. The foregoing lists are arranged in order of merit.)

REGISTERED DRUGGIST EXAMINATION.—The following passed:—Thomas Robert Bourke, Longford; Michael Joseph Conlan, Dublin; Wm. George Fleming, Castleblayney.

Brevities

On July 16, a plate-glass window in the shop of Mr. R. Stewart R.D., Main Street, Letterkenny, co. Donegal, was maliciously smashed. Previously this establishment had been bombed.

Among the claims for compensation for damage to premises and stock during the recent conflict in Dublin are those of Boileau & Boyd, Ltd., £50; Hoyte & Son, £3,000; and W. F. Wells & Son, £1,370.

Mr. R. F. McCartney, Ph.C., 9, The Diamond, Coleraine, was a member of the Coleraine Urban Council's deputation which gave the Irish Society a civic welcome on their annual visitation.

At a meeting of North Fermanagh loyalists in Irvinestown, Major C. F. Falls proposed a resolution calling upon the Imperial Parliament to have Mr. W. A. Murphy, Ph.C., who was kidnapped in Pettigo (*C. & D.*, July 15, p. 75) released at once, or brought to trial before an impartial tribunal. In moving the resolution, the Major said Mr. Murphy was one of the first, when war broke out in 1914, to join the 11th Battalion Inniskillings, and had served under him in his company for some time. He was a personal friend of his own. A postcard was received from Mr. Murphy at Glenties a few days ago.

Mr. James McCarthy, R.D., Main Street, Kirkcubbin, co. Down, gave evidence in the Northern Chancery Court, Belfast, on July 21, in a case in which his sister, Isabella Montgomery, Belfast, sued Lily McCarthy, Glashy, Kirkcubbin, her sister claiming administration of the estate of their late father, William McCarthy, Glashy, who died intestate on November 17, 1921. Plaintiff sought a declaration that the lands of the deceased, which in the spring of this year had been sold by the defendant to her brother, William McCarthy, for £1,000, were sold at a gross under-value, and that defendant be ordered to recoup to the estate the difference between the amount received by her and the true value of the lands as at the date of the sale. Mr. James McCarthy said he considered that £1,000 was a fair and reasonable price for the farm. Judgment was reserved.

Belfast

Cavan County Council have appointed Mr. Fagan, Dublin, as analyst.

Mr. Fred Storey, President of the Chemists' and Druggists' Society of Ireland, Belfast, is at present on a holiday in the Norwegian Fiords.

The premises of J. & G. Boyd, Ltd., wholesale druggists, Limerick, have been severely damaged in the recent conflict which has raged in that city.

At the annual street collection in aid of the Royal Victoria Hospital, Belfast, Mr. W. J. Rankin, R.D., who was superintendent of No. 11 district, returned the highest collection—namely, £125.

Mr. J. Taggart, Ph.C., is opening a Medical Hall at 194 Crumlin Road. He was recently with Mr. Andrew Wilson, Ph.C., Albert Bridge Road, Belfast, and served his apprenticeship in Ballymena.

Mr. George Kirk, Ph.C., has opened a new Medical Hall at 106 York Street, Belfast. Mr. Kirk has been in some of the best local houses, and also did his bit in the Great War, and qualified after his return.

Amongst those who received the degrees of Bachelor of Medicine, Bachelor of Surgery, and Bachelor of Obstetrics at the summer graduation ceremony in Queen's University, was Miss Maude W. McKnight, daughter of Mr. R. W. McKnight, Ph.C., Carlisle Circus, Belfast.

Scottish News

Brevities

Mr. R. S. Ramsay, chemist and druggist, Cardenden, Fife, has been re-elected chairman of the Cardenden Gas Co., Ltd.

At Perth Sheriff Court, on July 24, Euphemia Catherine Duncan (seventy-seven) was charged with uttering, on May 18, a forged prescription, which bore the signature of A. Trotter, M.B., for twenty quarter-grain morphine tablets. It was stated that when the accused, who pleaded guilty, presented the prescription at the shop of Mr. J. J. Forbes, chemist and druggist, Scoff Street, the recipient, Mr. D. McKiddie, chemist and druggist, was doubtful about it, and, asking her to return later, communicated with Dr. Trotter. For the defendant it was asserted that the original prescription had been lost, and she had copied it as nearly as possible. The Procurator-Fiscal said that the original prescription was given by Dr. Trotter in March, and was marked not to be repeated. He did not believe the story about the prescription being lost, as it must have been kept by the chemist. Therefore, the accused must have copied it before she presented the original, and copied it very exactly with an attempt to imitate Dr. Trotter's handwriting. A fine of 20s. or five days' imprisonment was imposed.

Glasgow

"Escaped till 8th August" is how a Glasgow shop-keeper announces to his customers that he has gone on holiday.

Miss Annie M. Jack, daughter of Mr. James Jack, chemist and druggist, Rothes, has passed the final examinations for the degrees of M.B., Ch.B., at Aberdeen University.

At Glasgow Sheriff Court, on July 24, Charles Wyllie, described as a shop assistant at 483 Argyle Street, pleaded guilty and was fined £5 and 35s. expenses for having sold a mixture containing strychnine, he not being a registered chemist and druggist.

Among other manufacturers represented at the exhibition held in the Kelvin Hall, from July 25 to 28, in connection with the annual meeting of the British Medical Association, are Duncan, Flockhart & Co. and Burroughs Wellcome & Co. The latter firm has an interesting display of Moogrol.

Legal Reports

Debt Claim.—In the Mayor's and City of London Court, on July 25, before Mr. Registrar Dell, a claim was made by Frederick Boehm, Ltd., chemical agents, 15 and 17, Jewry Street, London, E.C., against the Essex Vinegar Co., Holly Street, Dalston, vinegar manufacturers, for £14 17s. 10d. for goods supplied. A letter sent to the Court, signed by Mr. T. S. Crench, the defendant, stated that the vinegar combine were selling at cost price, and had ruined him after two years trading. He offered payment of the debt by instalments of £2 per month. He manufactured vinegar, being licensed, and paying 2 guineas a year. The Registrar thought the plaintiffs had better accept the defendant's offer. He gave judgment for the plaintiffs, and ordered payment of the first instalment on August 8.

Soap Maker's Affairs.—In the Mayor's and City of London Court, on July 21, before Judge Jackson, the case of Gluck v. Weaver was heard, in which Mr. Herman Gluck, 23 and 24, Wormwood Street, London, E.C., sought to enforce payment of £20 19s. 6d., due from defendant, Mr. L. W. Weaver, managing director of the Panremo Soaps, Ltd., 54, New Broad Street. Plaintiff said he did not know if the defendant's business was successful or not. Judge Jackson could not understand why plaintiff did not find out. Did the company pay any dividend? Plaintiff said it did not, and that it was recently floated. Defendant sold his soap works to a company, and was a director of the company. Defendant had told him that he was engaged in large building schemes, one of which was for £6,000. Judge Jackson ordered payment of £5 a month, and said plaintiff must bring him better evidence if he wanted an order of committal in default of payment.

Debt Case.—In the Mayor's and City of London Court, on July 21, before Judge Jackson, J. Grossmith & Son, Ltd., perfumers, 29, Newgate Street, London, E.C., applied to have Wilfred Rance, of Pomerants Drug Stores, 36, Brick Lane, E.C., committed for the non-payment of £11 3s. 10d., due for goods supplied. Plaintiffs' representative stated that the defendant kept a drug store. The debt was incurred last year. Since then defendant had sold his business to a limited liability company. Defendant was one of three directors, one of whom was his wife. The business was still being carried on. Defendant could pay the debt at once. Mr. Berry, plaintiffs' solicitor, said it was a clear case of turning a business into a limited company to avoid his debts. Plaintiffs' representative added that the defendant lived over the premises and was married. He did not know what his family consisted of. They put in an execution, and the goods were claimed by his wife. Judge Jackson ordered payment of £3 a month, with a committal in default of payment of the first instalment. A little later the defendant arrived at the Court, and said he had recently sold his shop on account of his liabilities. He was penniless. He would do his best to pay the plaintiffs. All he had was £2 a week. He sold the business, not to a limited liability company, but to Mr. James Andrew McCully. It was on December 5, 1921, that the company was registered. He received £500 for his business. Judge Jackson: Then why do you not pay your debts? Defendant: I have had a lot of liabilities. I was a director of the company. I took 250 shares. The other director is my brother. The other shareholder is my wife. I am not now a director. I have got nothing besides my £2 a week. Judge Jackson ordered payment of £1 a month, with committal in default of payment of the first instalment.

JOINT STOCK COMPANIES.—Notice has been given in the "London Gazette" that the names of the under-mentioned companies have been struck off the register and the companies dissolved: A. T. Barton & Co., Chemists, Ltd.; Gray's Drug Stores, Ltd.; Herald's Pills, Ltd.; Lancashire Drug Co., Ltd.; Manor Remedies Co., Ltd.; Pelican Chemical Co., Ltd.; Radio-Active Waters, Ltd.; Saccharose, Ltd.; Universal Remedies, Ltd.

New Companies and Company News

P.C. means Private Company and R.O. Registered Office

BLUE CAFE, LTD. (P.C.)—Capital, £2,000. Objects: To carry on the business among others of manufacturing chemists. R.O.: 100, Heath Street, Hampstead, London, N.W.

CORNER & WATLING, LTD. (P.C.)—Capital, £10,000. The objects are: Carrying on the business of many trades, including that of a chemist. R.O.: 35, Stall Street, Bath.

BRITISH PHARMACIES, LD. (P.C.)—Capital £2,000. Objects: To carry on the business as indicated by the title. The first directors are: J. R. Hex, 12 Regent Square, W.C.1., and H. C. Sansom, May Cottage, Hambrook, Emsworth. R.O.: 108, Euston Road, London, N.W.

ESSENTIAL PRODUCTS, LD. (P.C.)—Capital £100. Objects: To carry on the business of manufacturers of and dealers in toilet preparations, soaps, creams, perfumes, etc. The first directors are: E. C. Craven, H. J. Otter, and W. J. Seamer. R.O.: 59 Southern Road, Plaistow, London, E.13.

R. F. REED, LD. (P.C.)—Capital £500. Objects: To carry on the business of chemists, druggists, drysalts, oil and colourmen, etc. The amount remaining undischarged of moneys borrowed or raised by the directors for the purposes of the company shall not at any time exceed £10,000. R.O.: 32 Great St. Helens, London, E.C.3.

VINCETT & Co., LD. (P.C.)—Capital £1,500. Objects: To carry on the business of manufacturers, dispensers and sellers of and dealers in all kinds of drugs, medicines, pharmaceutical preparations, foods, restoratives and all patent articles, etc. The first directors are: F. Vincett and Winifred M. Flowerdew. R.O.: 4 King's Parade, Okehampton Road, Willesden, London, N.W.10.

BISHOPS, LD. (P.C.)—Capital £1,000. Objects: To carry on the business of confectioners, drysalts, oil and colourmen, importers and manufacturers of and dealers in pharmaceutical, medicinal, chemical and other preparations, cements, oils, paints, pigments and varnishes, perfumery, soaps, drugs, etc. The first directors are: J. J. Martin, C. T. Wharton, J. A. Ward, and W. J. H. Lawson. R.O.: 22 Cooper Street, Manchester.

PRIPP DE BRUN & Co., LTD. (P.C.)—Capital, £1,000. Objects: To carry on the business of manufacturers, distillers, exporters and importers of and dealers in perfumes, scents, eau-de-cologne, soaps, face creams and powders and toilet requisites of all kinds, etc. The first directors are: Mrs. V. E. E. Carling (chairman), Ingeborg Pripp, and Anna de Brun. Solrs.: Grant, McLean & Spink, 22 Surrey Street, London, W.C.2.

SCIENTIFIC REMEDIES, LTD.—At a meeting held in London on July 11 it was resolved that this company be wound up voluntarily. Mr. E. R. Babcock, 68, Aldersgate Street, London, E.C., was appointed liquidator. A meeting of creditors was held at the above address on July 25.

BRITISH OXYGEN Co., LTD.—The accounts for the year to March 31, 1922, showed profit of £76,849 after providing for corporation-tax and income-tax. The results permit of a final dividend, free of tax, at rate of 1s. 4d. per share, making 10 per cent., free of tax. General reserve has been reduced by writing off £28,134, including discount on and cost of issue of 8 per cent. debenture stock, £24,541, less £18,755 at credit of 6 per cent. debenture redemption account, leaving general reserve at £124,621. The directors consider it advisable to write down the value of the company's holding in Sparklets, Ltd., to par value of shares in company which were issued to shareholders of Sparklets and General Manufacturing Company under agreement of October 20, 1920, and have therefore written off premium of 30s. per share upon shares in company which were issued in connection with that offer and appeared in last balance sheet in item of premium account.

The Relation of Pharmacology to Pharmacy

PRESIDENTIAL ADDRESS

By H. G. GREENISH, D.Sc. (Paris), F.I.C., F.L.S., Ph.C.

As text of the address which custom requires that the President of the British Pharmaceutical Conference should deliver at the annual meeting, I propose to take the subject of "Pharmacognosy and the Pharmaceutical Curriculum." I have selected this subject partly because it is one of which I may claim to have some knowledge, but chiefly because I look upon pharmacognosy as a field of knowledge which the pharmacist is peculiarly fitted to cultivate, and in which he should have a claim to be considered an expert. The Pharmaceutical Society, with

its museums, herbaria, laboratories, library, and school, and with its fine record of eighty years, is entitled to and should regard itself as the headquarters of pharmacognosy in this country, as the body to which reference should be made for any information respecting crude drugs. This position can be retained only by maintaining those traditions of its activity that relate to pharmacognosy in a state of the highest possible efficiency.

I propose, therefore, to dedicate the scope of the subject, to outline the training which in my opinion the pharmacist should undergo to enable him to possess expert knowledge of it, and to put out a few of the many details upon which research is necessary. For without research no real progress is possible, and this fact must be borne in mind when arranging the curriculum for the student, and also when plotting lectures and practical work to the teachers. Both the University of London and the Board of Education recognise the necessity for research work by the teachers, and insist that they shall be allowed sufficient freedom from lectures and administrative work to allow them to prosecute research in their various departments.

PHARMACOGNOSY DEFINED

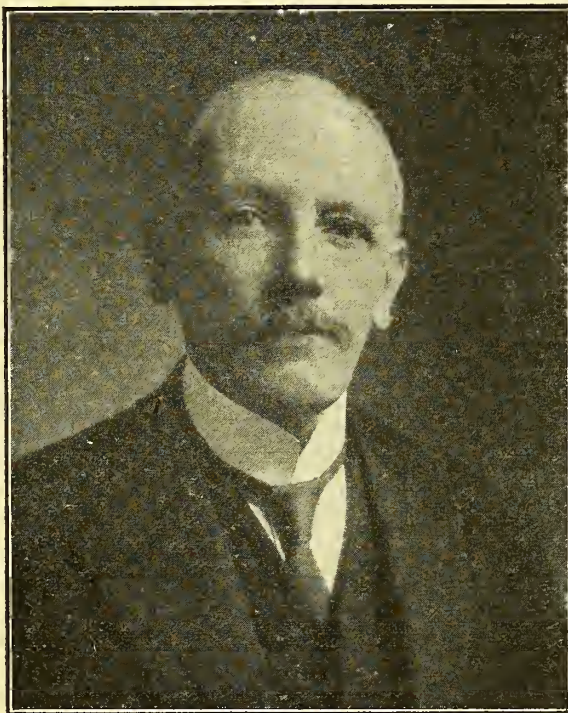
It will be desirable first of all to be quite clear as to what we mean by pharmacognosy. I have heard it defined, or, perhaps, rather described, as the "spotting of rugs." I have heard it said that all the pharmacist needs to know is what the drug is, what it costs, and how long it will keep. If the authors of these descriptions were in earnest, they must have had a very limited experience of pharmacognosy, and a very poor opinion of the knowledge that a pharmacist ought to possess.

According to Professor Tschirch, the term "pharmacognosy" was first used by Seydler as the title of a small work, which he called "Analecta Pharmacognostica," published in 1815. It was adopted in 1825 by Martius, who explained it to mean the discipline that investigated remedial agents from all three kingdoms of Nature as

regards their origin and quality, tested them for purity and examined them for substitution and adulteration. Subsequently the drugs derived from the mineral kingdom were separated from pharmacognosy and formed the basis of pharmaceutical chemistry. Professor Tschirch, who, it will be remembered, as Hanbury Medallist delivered the inaugural address at the opening of the School of Pharmacy in 1909, defines pharmacognosy as that science which deals with the investigation of drugs of animal or vegetable origin from all points of view (excepting only that of their therapeutical action), which aims at acquiring an accurate scientific knowledge of them, at describing them correctly, and at welding our knowledge of them into a scientific entity based on the chemical relationship of their active constituents.

Such a knowledge of pharmacognosy presupposes a knowledge of botany, chemistry, physics, and elementary zoology; it embraces geography, history, ethnology, and cytology, at least as applied to drugs; it includes the collection, preparation, and commerce of drugs. This represents what one of the most advanced thinkers in pharmacognosy understands to be the object of the science, and while doubtless many may differ in some respect or other, there can be little doubt that in the main it is correct.

Such are the subdivisions of scientific pharmacognosy as defined by Prof. Tschirch, and they must be mastered by those who aspire to teach pharmacognosy; but it



PROFESSOR H. G. GREENISH,
President of the British Pharmaceutical Conference

does not by any means follow that they should be mastered by the student of pharmacognosy or by the practical pharmacist. It is for the pharmacist to utilise the results arrived at by the scientific pharmacognosist and turn them to practical account. Thus it is for the scientific pharmacognosist to investigate the structure of vegetable and animal drugs in the minutest detail, and to point out distinguishing features, but it is for the practical pharmacognosist, that is the pharmacist, to utilise these results in order to enable him to recognise the drugs, to distinguish them from possible substitutions, to detect adulteration, to judge of their quality by their physical characters, to identify them when powdered, and to determine the purity of the powder. The pharmacist should further be in a position to apply the results of the chemical investigation of drugs to the determination of their quality by chemical assay, and he should, in addition, have a knowledge of indigenous medicinal plants, and also of indigenous toxic plants, even if these are seldom employed medicinally.

APPLIED PHARMACOGNOSY

There are doubtless many pharmacists, especially among those who view the subject from a purely utilitarian point, who consider that this knowledge may be sufficiently acquired by the pupil during his pupilage in a pharmacy. In refutation of this, let me quote to you the pertinent remarks of Dr. A. T. Thompson, in his first lecture on *materia medica* to the students of the School of Pharmacy in 1842. He said: "It may be argued that the daily occupations in the laboratory, in the storehouse, and in the shop of the chemist and druggist are sufficient, and perhaps the best mode of teaching the pupil the knowledge of the physical characters of drugs, and the leading features by which the good are distinguished from the bad; the position is certainly not devoid of force. Experience and observation are the means of acquiring such information; but we may have eyes and yet not be capable of employing the vision they bestow to advantage. How many thousands pass from the cradle to the grave without having made an accurate observation with respect to objects daily presented to their view! And if it is a just remark that the painter enjoys a double sense of vision, I must contend that it is requisite to educate the powers of observing in order to observe well; and need I argue that he who understands the branches of science to which I have referred (zoology, botany, and mineralogy) is more likely to attain a correct acquaintance with physical characters than he who has merely had his eye directed to them without any systematic method of examination and of comprehending the causes of the variety they display." As the purely utilitarian point of view is not infrequently advanced as a reason for learning as little as possible about anything unless what is learnt is directly translatable into pounds, shillings, and pence, allow me to explain why, in my opinion, the pharmaceutical student should learn as much as possible about pharmacognosy and the sciences allied to it, particularly botany and pharmaceutical chemistry. As a member of the community, it is the chief duty of the pharmacist to provide the public with medicines, simple or compound, of the proper quality. These medicines consist of, or are prepared from, either vegetable or animal drugs on the one hand, or from more or less pure chemical substances on the other, and it is the business and duty of the pharmacist to have as thorough an acquaintance as possible with them in order that he may be equal to the responsibilities he has undertaken. The utilitarian is, of course, perfectly entitled to his point of view. No valid objection can be raised to the sale of perfumes and hair-brushes by the pharmacist, but it is for those among us—and I hope they are many—who have higher ideals of pharmacy to see that the desires of the utilitarians are not carried into effect to the prejudice of the true interests of pharmacy.

PRELIMINARY REQUIREMENTS

In order that the student may be capable of understanding and appreciating a course of instruction in scientific pharmacognosy, there can be no question that he should have had a thorough grounding in botany, chemistry, and physics, and that he should possess an elementary knowledge of zoology. But, in addition to these sciences, he must also have had a preliminary general education of a distinctly higher standard than that which at present obtains with the majority of the entrants into pharmacy. He must have a good knowledge of geography (including physical geography) and of the history of the world, and a training in commerce and economics would be of distinct advantage to him. It is impossible for him to be in this position unless his preliminary education has been of a standard commensurate with the demands that will be made upon him, and one of the most hopeful signs for the progress of pharmacy in the future lies in the now generally accepted opinion that a considerable elevation of the standard of preliminary education is essential. The decision of the Pharmaceutical Society in 1897 to retain the Junior Examination of the College of Preceptors as one of the entrance examinations to pharmacy was fatal to real progress. This decision was apparently the result of a dread felt by many members of the Society that a raising of the standard of the entrance examination might be

accompanied by a restriction of the number of entrants, and that consequently the aid necessary to pharmacists for the conduct of their businesses would be more difficult to obtain and command a higher remuneration. If this was really the case, then the future true welfare of pharmacy was sacrificed for the sake of present advantage. What has been the result? For the past quarter of a century the entrance examination into pharmacy has remained the same, while the standard of general education throughout the country has been steadily rising and the facilities for obtaining that education steadily increasing. In the years 1903-1913 about 70 per cent. of the students entering the Society's School of Pharmacy had attained the standard of education demanded by the easiest entrance examination only. I do not think I am exaggerating when I say that a large proportion of the entrants into pharmacy during the past twenty years have not been able to work out simple arithmetical sums and have been sadly lacking in general knowledge and in the powers of observation and deduction. Teachers have been attempting to erect a solid edifice upon the most insufficient foundations, and in many cases the task has been too great.

In the Report of the Royal Commission on University Education of London, the Commissioners said that:—

A university works by the co-operation of its teachers and students in study and investigation, a process in which the student is trained to learn in an inquiring spirit, and the teacher is assisted in his endeavours to advance knowledge by the effort to communicate it to others, and by the stimulus which the youthful doubts and enthusiastic labours of his best students afford him. This co-operation, however, cannot be effectively realised unless certain conditions have been fulfilled. In the first place a sound general education is an indispensable basis of the undergraduate student's work. It is no doubt possible for a considerable amount of knowledge of a specialised kind to be acquired upon a relatively meagre groundwork of general education; but for the ordinary student a point is reached sooner or later, and more often soon than late, where all further advance is hampered, if not entirely prohibited, unless he has acquired the power of accurate expression and orderly thought. These are the two intellectual qualifications which, stated in its most general terms, it is the aim of a sound general education to give, and if they do not exist, a large part of the benefits of a university training will be lost.

THE ORDER OF STUDY

Assuming for the moment that a rise in the standard of preliminary education of the pharmacist is an accomplished fact, and that the student has passed his entrance examination, let us consider what should be his next step to fit himself for the study of pharmacognosy. Naturally a training in botany is the most important, as nearly all the drugs dealt with by the pharmacognosist are of vegetable origin. Should this knowledge be acquired before his pupilage in the pharmacy or afterwards? On this point opinion varies, not only in this country, but on the Continent also. In Belgium the scientific training precedes the practice in the pharmacy; in France the practice in the pharmacy precedes the scientific training. In either case the scientific training is continuous, and the whole time, energy, and thought of the student is devoted to it. In this country the entrant into pharmacy is debarred from adopting the Belgian plan in its entirety, since he must have spent at least two years in a pharmacy or approved institution before he can present himself for the second or final part of the qualifying examination. He may adopt, and in the past almost invariably has adopted, the French plan and passed through his pupilage before commencing his scientific studies. Sir David Prain, in his admirable address to the students of the School of Pharmacy last year, vigorously supported this arrangement and based his arguments largely upon the result of his experience as Director of Kew Gardens. The late Professor Bourquelot also, one of the most advanced of pharmacists, was a strenuous advocate of the system, stating that his observation of the students who had passed through his hands was that the course of training in the pharmacy was invaluable for fostering and developing a scientific spirit in the pupils, and for giving them a thorough training in habits of neatness and cleanliness, and in the skilful manipulation of apparatus, which are of the greatest service to them in their scientific studies.

But the student of pharmacy in Great Britain may, under present regulations, adopt an intermediate plan, may pass the first part of the Qualifying examination before his pupilage and the second part after. In this way the continuity of his studies would be interrupted for two solid years. I have no doubt whatever that such interruption would be a very severe handicap to him. Every teacher of botany, chemistry, or pharmacognosy who has had students return to him after an interval of two years spent in the practice of pharmacy knows the amount that can be forgotten in that time. We have had, fortunately, sufficient experience of this in the case of those who, compelled by the war to abandon their studies, have returned to them after three or four years to find that they had not only forgotten much, but had to a great extent lost the habit of study. These men and women, who have thus suffered through no fault of their own, deserve our intense sympathy. But the pupil who has the option of making his study continuous or discontinuous and chooses the latter has only himself to blame if, later on, he finds himself handicapped. That he will be handicapped is, to my mind, certain. If he were dealing with botany alone, he might during his pupilage in the pharmacy maintain a certain continuity by means of evening or other classes, but when one considers that he would have to devote at least an equal period to physics and a much longer period to chemistry, then such a task, in conjunction with the daily work in the pharmacy, is more than any but the most robust can endure. If the pharmaceutical pupil decides to take his pupilage in the pharmacy before his systematic course of study, then attendance at evening classes at one of the various technical schools may be useful, but such attendance must be strictly commensurate with his physical and intellectual vigour, and allowance must be made for the necessary time for homework in the same subjects. Such classes in botany, for example, may form a useful preliminary to, but cannot in any way replace, a systematic day course in a properly equipped institution as a groundwork upon which the study of pharmacognosy is to be based.

THE INFLUENCE OF BOTANY

Let me now turn for a moment to consider the influence that may be exercised by the nature of the course of botany through which he passes. Without going into too much detail, I think it will be generally admitted that a course of general botany in which the illustrations required are drawn from drugs or from medicinal plants, and in which special attention is devoted to those sections that will be most needed by the pharmacognosist, such as anatomy, morphology, physiology, and systematic botany, will best fit the student for the application of his knowledge on the study of pharmacognosy and eventually to the solution of its problems. At the same time it should be so broad that if at a later period the pharmacognosist desires to apply the principles of genetics to the cultivation of medicinal plants, he should at least have a foundation on which to build. In courses of general botany so little detailed attention is usually paid to the anatomy of plants that pharmaceutical students have to devote to that part of their work time that should be devoted to the application of such knowledge to the examination of drugs. In the School of Pharmacy, and probably in other institutions in which the training is specially arranged for pharmaceutical students, this disadvantage does not obtain, as the botanical course is properly coordinated with the course in pharmacognosy to the distinct advantage of the student. Should the Society decide to accept for Part I. the certificates of other examining bodies, as, for instance, the Intermediate Examination for the degree of Bachelor of Science, then either such students must be placed under a disadvantage, or the courses in pharmacognosy must be adapted to suit them. In botany at least there is no doubt that the course best suited to the pharmaceutical student is one specially adapted to the particular objects that he has in view.

Some years ago the Minister of Education in Austria, referring to the introduction of a new curriculum and examination for pharmacists, said that care was to be taken that, as far as possible, the lectures and practical work in the various sciences should be specially designed for students of pharmacy. With that I cordially agree.

PHARMACOGNOSY AS AN EXAMINATION SUBJECT

Let me now turn to pharmacognosy as a subject in the final part of the Qualifying examination, and inquire to what extent the student may reasonably be required to carry his acquaintance with it. Obviously, he should be required to be familiar with all the crude drugs described in the British Pharmacopoeia. To these might be added other unofficial drugs such as those that form the basis of galenical preparations occasionally if not frequently prescribed or demanded by the public. To ensure that the candidate has had sufficient training in practical work and has not contented himself with a superficial recognition of the drug without knowing, searching for, and finding the diagnostic characters, he should be required to demonstrate these diagnostic characters to the examiner, using for this purpose either qualitative chemical tests or examination by means of the lens, or, if necessary, by means of the microscope. As the candidate will have already received the requisite preliminary training in botany, examination by means of the microscope, even if the cutting of a section is necessary, should present no difficulty. He should further be required to have a general knowledge of the chief constituents of the most important drugs, of their localisation, of the secretory tissue in which opium, turpentine, myrrh, etc., are contained. To put it briefly, the time has arrived when the training and examination in pharmacognosy should be directed towards imparting to and requiring from the candidate a more thorough, a more scientific, and a more practical knowledge of crude drugs. Such requirements will have the advantage of checking a far too prevalent disposition to make the subject almost entirely a pure effort of memory.

With the conditions under which the pharmacognosy will, in the very near future, be taught, bearing in mind the large number of institutions that have been approved for the purpose, a syllabus of the examination will, I suppose, remain a necessity, although the length of the course and the number of hours to be devoted to the subject should be a sufficient guide to both teacher and examiner. The Royal Commission in their Report condemned the syllabus by saying:—

The syllabus is a device to maintain a standard among institutions which are not all of university rank. The effect upon the students and the teachers is disastrous. The students have the ordeal of the examination hanging over them and must prepare themselves for it or fail to get the degree. Thus the degree comes first and the education a bad second. They cannot help thinking of what will pay; they lose theoretic interest in the subjects of study, and with it the freedom, the thought, the reflection, and the spirit of inquiry which are the atmosphere of university work. They cannot pursue knowledge both for its own sake and also for the sake of passing the test of an examination. And the teachers' powers are restricted by the syllabus; their freedom in dealing with their subject in their own way is limited; they must either direct their teaching to preparation for an examination which is for each of them practically external, or else lose the interest and attention of their students.

The problem is not an easy one to solve, but in the interest of the education of the student as contrasted with preparation for examination, the attempt to solve it should be made, and in the case of the subject with which I am dealing its solution should not be an impossible task. In any case the syllabus, if syllabus there must be, should be couched in terms as general as possible, and both teachers and examiners should be pharmacists, either men or women, who have received a thorough training in scientific pharmacognosy.

ADVANCED TRAINING IN PHARMACOGNOSY

The next question to be considered is the nature and scope of the advanced training in pharmacognosy to be undertaken by the student who has passed the Qualifying examination. Undoubtedly a more thorough acquaintance with the minute structure of the more important drugs and an efficient training in the identification of powdered drugs, the determination of their freedom from adulteration, and the analysis of mixed powders should occupy the first position. The student should also acquire such a knowledge of the chemical methods of assaying drugs as to allow of his undertaking such work with confidence in his results, and he should extend his general knowledge...

of the active constituents of the more important drugs and their relation to one another. The examination in pharmacognosy for the Major qualification should be based on similar lines. In this respect I think it is generally admitted that the present examination is lamentably defective. It is imperative that the time allotted to it should be doubled, and that the scope of the examination should be revised.

The remark is frequently made that the Major qualification is of little or no direct advantage to the pharmacist in business. If an embryo pharmacist determines to become and remain a trader pure and simple, deriving an income from his trading without a thought of advancing himself in a knowledge of his craft beyond the minimum legal requirements, and without a desire to raise the standing of his craft beyond that of a trade, he is at liberty to do so. But it is inconceivable to me that any intelligent pharmacist should hold the advantage of a thorough education in his craft in so little esteem and have so poor an opinion of his own ability to profit by it, as to refrain from carrying his training to the highest possible limit of his financial position. The words of an editorial article, probably by Jacob Bell, in the "Pharmaceutical Journal" of 1847, apply with equal force to-day:—

The existence of such an institution (the School of Pharmacy) was an innovation, an inroad on the accustomed prejudices of a body of tradesmen who had been accustomed to estimate every advantage, whether moral, social, or political, by pounds, shillings, and pence; and we were from the beginning quite prepared for the inquiry. How much shall we gain by it? It would be difficult to convince a child that by learning his A.B.C. he is acquiring the means of subsistence, but it ought not to be difficult to convince a chemist that by obtaining a knowledge of his profession he is deriving a similar advantage.

There is some indication, it is true, of an increased desire on the part of those who have passed the Qualifying examination to proceed to the Major, but it is not possible to estimate the exact position. I am well aware that certain suggestions have recently been made with the object of adding to the value of the Major examination and so attracting more candidates. These suggestions do not, however, touch the subject of pharmacognosy, so that I must content myself with simply stating that in my estimation the pharmacist should master the work that is his own before he attempts to acquire expert knowledge of other branches of science.

Post-graduate work in pharmacognosy and the problems in pharmacognosy that await solution must next claim our attention. Although the Pharmaceutical Society has provided research laboratories and offered inducements to advanced students to carry out investigations in them, the number that have availed themselves of the offer has not been large. The reason for this is probably to be found in the absence of any tangible reward for the time and labour expended. Consequently the pharmacist who has passed the Major examination and wishes to continue his studies usually aims for the degree of Bachelor of Science of the University of London or the Fellowship of the Institute of Chemistry, and with either or both of these he is usually content. Neither of them involves the necessity for research work; consequently, it is seldom that he carries out any research, with the result that he loses an invaluable training, and pharmacognosy is deprived of a contribution to the solution of one at least of its problems. Indeed, it is not too much to say that the training in scientific pharmacognosy is incomplete until the student has carried out at least one research in some branch of the subject.

A POST-GRADUATE STUDENT'S GOAL

Recent regulations of the University of London have, however, considerably altered the position of students of pharmacy by bringing within their reach a tangible reward for their post-graduate studies. I allude to the degree of Doctor of Philosophy. The conditions for taking this degree are not very onerous. The candidate must have graduated in the faculty of theology, arts, science, or economics in the University, or in an approved foreign university, at least two years previously, and must submit

to the University for approval the subject of a thesis which must form a distinct contribution to the knowledge of the subject chosen and afford evidence of originality; he must also submit to an oral or written examination on a subject relevant to the thesis. After taking the degree, the candidate may proceed to a higher degree in the same faculty. An internal student must carry out the research for his thesis under the supervision of a recognised teacher of the University, though not necessarily in the laboratory of one of the constituent colleges of the University. Under these conditions it is possible for both internal and external students to carry out the work for their theses in the research laboratories of the Pharmaceutical Society, and at the present moment a graduate of a foreign university is so working in the pharmacy research laboratory, the subject of his thesis, which has been accepted by the University, embracing work in the field of pharmacognosy, both on the botanical and chemical sides. Such work is of inestimable value both to the post-graduate student and to the teacher. The very condition that the thesis "must afford evidence of originality" encourages them to develop their work along their own lines of thought, and liberates them completely from the strangling influence of a syllabus.

A number of the more advanced students of the School of Pharmacy, after passing their Major examination, proceeded through the Intermediate Examination in Science to the degree of Bachelor of Science. There is now an additional inducement for them to continue their studies, and by means of research work carried out in the Society's research laboratories, proceed to the degree of Doctor of Philosophy. The progress of such students eventually to the degree of Doctor of Science would be much facilitated if arrangements could be made with the University to accept pharmacognosy as one of the subjects for the degree of Bachelor of Science on lines similar to those adopted some years ago in the Universities of Manchester and Glasgow.

The field of pharmacognosy is so wide and the problems that await solution are so diversified in their nature that no difficulty will be encountered in selecting subjects for theses that will appeal to the varied abilities and special qualifications of post-graduate students, who will doubtless be encouraged to put forth their utmost powers to give their work a claim to be classed with the researches of eminent pharmacists who have preceded them. I may mention the isolation of the active constituents of drugs on which so much admirable work has been done by the late Professor Bourquelot and by Dr. Power and Dr. Henry; on the drugs and other useful plants of the (French) colonies by Professor Perrot; on the chemical assay of drugs by Farr and Wright; on the botanical identification by that unrivalled master of the subject E. M. Holmes; on the localisation of the active constituents by Professor Goris. Much, indeed, has been accomplished by these eminent men, all of them pharmacists, but much more remains to be done.

AN EXPERIMENTAL STATION FOR PHARMACOGNOSY

For example, further researches on the influence of selection, breeding; and manuring in increasing the amount of active constituents in plants are urgently required. In this respect it is unfortunate that no experimental station exists in this country in connection with the Pharmaceutical Society. I mean such a station as the Wisconsin Pharmaceutical Station. This station is a co-operative enterprise between the office of Drug Plant and Poisonous Plant Investigation of the Bureau of Plant Industry of the United States and the Pharmaceutical Experiment Station of the Department of Pharmacy of the University of Wisconsin. Its establishment was endorsed in 1917 by the National Association of Retail Druggists, which resolved:—

That this Association go on record in favour of the establishment of a pharmaceutical experiment station in every State of the Union and the support, in part at least, of such stations by the Federal Government for the benefit of pharmacy in general and the highly important vegetable materia medica in particular.

The station receives a contribution of 5,000 dollars a year from the Federal Government. It is aided by con-

tributions from various pharmaceutical firms interested in the work, and, in conformity with a resolution adopted by the Alumni of the University of Wisconsin, has established a research fund. When discussing the introduction of the Bill to establish the station, the Alumni stated in their resolution that "appreciating that the professional standing of the pharmacist depends as largely upon the advancement of the science and art of pharmacy as upon the services which he renders more directly to society, the pharmaceutical Alumni of the University of Wisconsin have decided to raise a research fund to be administered by the Board of Regents."

Such a station, of however modest a nature, would be invaluable as an aid to the furtherance of scientific pharmacognosy in this country, and there would seem to be no insuperable difficulty to its establishment, if not as an independent station, possibly as an adjunct to one of the agricultural institutes. At present the research laboratories of the Pharmaceutical Society, which, as I have said, should be the headquarters of all information respecting drugs, have no place where the material necessary for their work can be grown, but have to depend upon the assistance—always, be it said, most willingly given—of the Director of Kew Gardens and of the Curator of the Chelsea Physic Garden. The financial position of the Society, as shown by its balance-sheet, is sound. Is it not obvious that the small expenditure necessary for extra facilities in this direction would not only further the Society's scientific work, but would also raise its position in the eyes of every learned society and educational body in the kingdom? Such expenditure would be perfectly legitimate and in harmony with the objects for which the Society was founded and with the policy pursued during the greater part of its life.

THE FIELD FOR INVESTIGATION

As further subjects on which investigation is required, I may mention the part played by alkaloids in the metabolism of the plant. At present the opinion is gaining ground that alkaloids form a means by which plants dispose of the excess nitrogen resulting from the breaking down of complex nitrogenous substances. Until more light is thrown on this it is difficult to see how rational experiments can be conducted to induce or compel the plant to produce larger quantities of such alkaloids. While the synthetic production of quinine, for example, would undoubtedly be a triumph for organic chemistry, the more economical method of production may well lie in the proper utilisation of the countless millions of natural laboratories that every plant possesses in the cells of which its tissues are composed.

So vast in extent and so widely distributed are the British Dominions that they must contain an untold wealth of plants, some of which may well be superior for medicinal, dietetic, or technical purposes to those now generally employed. The Committee of Scientific and Industrial Research, well aware of this, has appointed a Forestry Research Board, of which Sir David Prain is the Director, and the Board has appointed a sub-committee which is charged with investigations of this nature, and which a pharmacognosist has been invited to assist by his expert knowledge of medicinal plants.

Many drugs reach the Society's research laboratories and museum of which the botanical sources are quite unknown. A means of determining these, or arriving at some approximation to them, based on the anatomical or other characters, would be extremely useful; here there is unlimited opportunity for useful investigation and tabulation.

That this country is, in one respect at least, in a peculiarly fortunate position was recognised many years ago by Jonathan Pereira, who, when appealing to the Council of the Society to appoint a Scientific Committee for the Promotion of Pharmacological Knowledge, said, with reference to the problems in materia that still remain to be solved, that:—

No country in the world possesses so many facilities for carrying on inquiries such as those to which I here allude as Great Britain. Her numerous and important colonies in all parts of the world, and her extensive commercial relations, particularly fit her for taking the lead in investiga-

tions of this kind. Moreover, she is peculiarly interested in such inquiries. From her extensive possessions in different parts of the world we draw a very large portion of the substances now used in medicine. By the establishment of a Committee on Pharmacology in the mother country an opportunity would be obtained of bringing into notice the various medicinal substances produced in the different portions of this great Empire. In this way substances now unknown to us or little employed by us might be brought into use, and in some instances, perhaps, the produce of our own colonies might be advantageously substituted for that of other countries. Furthermore, in those cases in which British products are inferior to those of other countries, this committee might be able to ascertain the causes of the inferiority and suggest the means of removing them. In these and other ways, then, I apprehend that such a committee would prove useful in a commercial as well as a scientific point of view.

UNIVERSITY DEGREES FOR PHARMACISTS

The University of Manchester, in 1904, included Pharmacaceutics in the list of subjects which may be presented for a degree in Science. Pharmaceutical students who wish to take this degree must have passed the Matriculation examination or its equivalent. They then attend courses in Chemistry, Physics, Botany, and Pharmacy, and present themselves for the Intermediate examination in the first three subjects at the end of the first year. During the second year they attend courses in Advanced Chemistry, Advanced Botany, and Pharmaceutics; during the third year further approved courses in Chemistry or Botany, and in Advanced Pharmaceutics; they also have to attend an approved course in an Arts subject, preferably French or German. The subjects they present for the Final are (1) either Chemistry, and (2) Pharmaceutics. Pharmaceutics include (1) General Materia Medica, Chemical, Vegetable and Animal; (2) Pharmacy and Pharmacy Law; (3) one of the following groups of drugs treated more fully, viz., (a) Synthetic Remedies; (b) Alkaloids and Glucosides; (c) Volatile Oils and Resins; (4) Laboratory Work, including Pharmaceutical Chemistry, Pharmacognosy, and Practical Pharmacy. This includes the chemical, general, and microscopical examination of drugs, their commercial varieties, substitutions, and adulterations, including assaying, the isolation of active principles, and exercises in pharmacopoeial preparations.

In the University of Glasgow the candidate for the degree of B.Sc. in Pharmacy must follow a course analogous to that prescribed by the University of Manchester. It will be unnecessary for me to enter into detail beyond pointing out that the chief difficulty lies in the subjects required for the Final examination. These are Chemistry, Botany, Materia. and Pharmacy.

Three years ago Miss Buchanan, at a meeting of the Council of the Society, moved: "That it be referred to the Library, Museum, School, and House Committee to approach the appropriate authorities with a view to the establishment of a degree in Pharmacy of the University of London," and earnestly commended to the attention of the Committee the desirability of giving special thought to the proposal for the erection of a College of Pharmacy which would be recognised by the University. This resolution was adopted, and the time is now opportune for making a determined effort to induce the University of London to follow the example of Manchester and Glasgow and offer facilities and inducement for our students to proceed through the degree of Bachelor of Science to that of Doctor of Philosophy, and possibly of Doctor of Science. There is no doubt that advantage would be taken of such facilities. More of the entrants into pharmacy would matriculate at the University; more of them would take a degree in Science, and some, certainly those who aspired to teach pharmacognosy, would proceed to the degree of Doctor of Philosophy.

The immediate objects that the great men who founded the Pharmaceutical Society had in view are known by heart to every pharmacist. The energy they put into their work was such that within thirteen months of the foundation of the Society the School of Pharmacy was established, and within three years the first public chemical laboratory in this country was opened. Is not this a record of which any Society might be proud? And what was the effect of this policy on the estimation in

which the Society was held? The Committee for the Promotion of Pharmacological Knowledge to which I have alluded consisted of fourteen members of Council, together with fourteen honorary members and other scientific men, of whom no fewer than eleven were Fellows of the Royal Society. Does not this fact speak for itself? And if you wish confirmation of the character of the leaders of the Society, read the Journal published by the Society while still in its infancy, and by the solidity of the information and the dignity of the style judge of the calibre of the men under whose guidance it was published. Yet their good work was checked by the rank and file, who, by insisting on a reduction of the subscription from £2 2s. to £1 1s., and so refusing to contribute three-farthings a day, cut down the supplies to a Society that had to form and maintain a library and museum and support a school! What would not the position of the Society be to-day had it not been for that short-sighted policy?

THE RENAISSANCE OF PHARMACY

For many years the Council continued its endeavours to raise the Society to the rank of a learned body, and so acquire the influence that it should be in a position to exercise, but of recent years this policy has receded into the background. There is, however, at the moment distinct evidence of the determination of the Society to foster its scientific work more in the future than it has done in the immediate past, and I regard this as one of the most hopeful signs for the future of pharmacy. By developing the work that is our own—that is, the natural history and chemistry of drugs, either through botany and pharmacognosy on the one hand, or through chemistry and pharmaceutical chemistry on the other—we shall establish our position as a learned Society. The way is through the schools of pharmacy and through the research laboratories, which are a necessary, and should be a compulsory, complement of every school of pharmacy; teachers who have been properly trained and who are imbued with the proper spirit may be trusted to follow it.

I am convinced that the future progress of pharmacy as an honoured art and profession depends upon the development of pharmacognosy and pharmaceutical chemistry as specialised sciences. I have devoted my remarks to pharmacognosy, and I trust I have clearly outlined the main principle underlying them and justified its soundness. There may be obstacles to be surmounted, misunderstandings to be dispelled, and prejudices to be overcome, but the spirit of the pioneers of scientific pharmacy exists to-day in the great pharmaceutical community of this country. Though latent, it is strong, and awaits only time and circumstance to become again the animating factor in the counsels of our craft. May the Pharmaceutical Society, mindful of its splendid traditions, apply its energies in the sphere that is its own, set its educational policy steadfastly in the direction indicated by the wisdom of its founders, re-light the lamp of enthusiasm, and foster the love of the calling which distinguished its early years. So alone can pharmacy ensure for itself the appreciation of a nation.

Westminster Wisdom

By the "C. & D." Parliamentary Representative

THE END OF THE SESSION

The Clinical Thermometers Bill is to stand over for consideration in the Autumn Session. The Merchandise Marks Bill will also be postponed if it proves to be contentious.

MEASURING INSTRUMENTS BILL

This Bill, to extend the power of the Board of Trade to make Regulations with respect to measuring instruments used for trade, and to amend the law with respect to instruments used in ascertaining wages, and for purposes connected therewith, was introduced to the House of Commons on July 19 by Sir William Mitchell-Thomson. The Bill is not to be proceeded with until the autumn.

THE SALE OF ARSENIC

Dr. McDonald on July 26 asked the Minister of Health if, in view of the fact that large quantities of arsenic

can be obtained from chemists by individuals merely signing a poison book, he will take steps to discontinue this practice.

Sir Alfred Mond replied that the sale of arsenic is governed by Sections 1 and 2 of the Arsenic Act, 1851, and by Section 17 of the Pharmacy Act, 1868. It would require further legislation, which will be considered, to deal with the point raised.

THE USE OF COCAINE

Dr. McDonald on July 26 asked the Minister of Health if he will now supply the House with the answers received in reply to his inquiries forwarded to the medical and dental professions concerning the necessity or otherwise of the use of cocaine.

Sir Alfred Mond replied that he was satisfied that cocaine is essential to the medical profession, particularly in ophthalmic surgery and laryngology. As regards dental surgery, although dental surgeons are not unanimous, there are many who regard cocaine as essential for certain dental operations.

THE DISTRIBUTION OF COCAINE

Dr. McDonald asked the President of the Board of Trade, on July 24, if he will take steps to obtain from all persons licensed to import cocaine into the country a record of the areas to which it is distributed.

Mr. Shott, who replied, said that licensed importers are required to keep records of their sales, and these records are inspected from time to time. The records would not show, however, the areas to which the drug is eventually distributed, as it may pass through several hands, wholesale chemist, manufacturing chemist and others, before it reaches the medical practitioner, dentist, or other person by whom it is used.

SAFEGUARDING OF INDUSTRIES ACT

New Industries

Mr. Briant asked the President of the Board of Trade, on July 24, if he can give any information as to the number of new industries or new factories, or additional employment in the various industries in the trades concerned with the production of the 6,300 commodities specified in the Board of Trade list of articles dutiable under the Safeguarding of Industries Act.

Mr. Baldwin replied that it is not possible to make any detailed statement on this subject at present, and in view of the fact that the Act has been in operation for less than ten months, and of the general trade conditions which have prevailed during that period, any such statement, even if possible, would be liable to be misinterpreted. But marked developments have taken place in the range of production of the branches of the chemical industry covered by the last heading of the Schedule to the Act, which account for the greater number of the items in the list issued thereunder, and distinct progress is being made also in respect of scientific glassware and optical and scientific instruments. He added that there is no doubt that in a number of cases the Act has encouraged manufacturers to keep in operation works which would otherwise have been shut down.

Sodium Hyposulphite

Dr. Murray asked the President of the Board of Trade, on July 24, whether his attention has been drawn to the remarks of the Lord Chancellor's Referee, in giving judgment in the sodium hyposulphite case, to the effect that, where the letter R is prefixed to certain chemical commodities in the Key Industries List, the exact meaning and scope of the letter R should be in some way defined; and whether he can state what steps he is taking to carry out the suggestion.

Mr. Baldwin replied that he had studied the judgment given by the Referee in the sodium hyposulphite case. It embodies no suggestion such as is made by the hon. member, that the exact meaning and scope of the letter R, as used in the lists issued under Section 5 of the Safeguarding of Industries Act, should in general be defined. The Referee did, however, say that it is advisable to be a little more definite as to what is meant by the letter R in this particular case.

Proprietary Articles Trade Association

THE twenty-eighth annual meeting of the Proprietary Articles Trade Association was held at the Holborn Hall, London, W.C., on July 20. Mr. P. F. Rowsell (President) in the chair.

THE PRESIDENT began the proceedings by moving the adoption of the annual report (*C. & D.*, July 1, p. 24). There was only a small attendance, and in commenting on this fact Mr. Rowsell pointed out that it was not unusual, and it betokened that members must be well pleased with those who conducted affairs, otherwise they would attend in larger numbers. Turning to the report, the President alluded first of all to the manufacturers' section, which had admitted 57 firms, and lost 40 by resignation, thus having a net increase of 17. He had heard people say that the loss of 40 members in a year from that section was rather a serious matter. But it was the usual thing in connection with the P.A.T.A., and if it were otherwise he was inclined to think they would all become manufacturers and place their articles on the list, feeling that all they had to do was to get a good article and then an assured sale by joining the Association. The latter, however, had never set out to do anything of that sort, but it did encourage the wholesaler and the retailer to show the utmost goodwill to articles produced by the manufacturers who were members and to do all they could to ensure that sales were made and the goods asked for. On the other hand, if all that was necessary was to join the Association, bring out an article and put it on the list, it would be a sure and easy way of making a fortune.

APPEAL TO RETAILERS

The wholesalers' section was very strong, had always been so, and always would be. In the retailers' section, it irritated him to find that the chemists of the country had allowed the subscriptions to decrease to the extent of about £50. He maintained, and had always done so, that the real advantage of the Association was to the retailers of the country. The Association had no power to make them pay their 7s 6d., but he could not possibly understand men who obtained such immense advantages from the working of the organisation omitting to pay their subscription. As a retailer, the President said he wanted to make a very strong appeal to retailers to see that this retrograde movement was arrested this year, and that the section not only regained its old strength, but increased during the coming year. (Hear, hear.) With reference to cutting of prices, the Association had had a good deal of trouble this year, but he wanted to make it clear that the trouble did not come from the ranks of pharmacy. Indeed, the Council appreciated the way in which the corporate bodies in pharmacy, as well as the individual pharmacists, accepted and stood by the arrangements of the P.A.T.A. If there was ever a mistake it was usually due to a new apprentice or other subordinate, and the pharmacist involved was only too anxious and willing to put the matter right. He wished to pay a cordial tribute to the pharmacists of the country, therefore, for the excellent way in which they maintained the work of the Association. Referring to the Council membership, the President said he had heard Sir William Glyn-Jones on many occasions say he regarded the Association as his baby. There are some of us who were there at the birth of the baby," said Mr. Rowsell, "and we know something about the pains and trials of its early years. We know something of the way in which it was brought to boyhood and then to manhood, and we took part in its coming of age some four or five years ago. It has occurred to me that some of us who have been associated with the organisation from the beginning may be assumed to know more about it, and perhaps on account of our age we may be allowed to think so occasionally—but perhaps some of our younger members think we ought to do more." Many things were brought forward which those responsible thought were new ideas, but some of them had been discussed by the Council members for the last ten or fifteen years, and

they might be excused occasionally for saying that they knew how the ship should be guided. Those who were in at the start of the Association were gradually becoming fewer, and they had that day to mourn the death of Mr. W. Lane, a most valued member. Although Mr. McCaig was in the best of health, they had also lost his services and the invigorating force which he put into the work of the Association. Lately, again, they had lost through death Mr. Currie, a very old member, and the Council had that day passed a resolution of sympathy with Mrs. Currie in her sad loss.

The balance-sheet was not quite so good as usual, but that was the aftermath of the war, and the expenditure was now being brought to a point at which it would be well within the income. Though he did not consider the balance-sheet unsatisfactory, he ventured to suggest that the Association would never, or at any rate not for many years, have a balance-sheet which showed a deficit like that in the present case. And there was also another reason for the state of the balance-sheet, for they had had to move into new premises and to clear up outstanding matters. He thought if full consideration were given to these facts the Association was in a favourable position. (Applause.)

DISCUSSION

MR. BARCLAY, the treasurer, seconded the adoption of the report, and in supporting Mr. KEITH emphasised what the President had said regarding retailers, urging members to do all they could to get retailers to join the Association. Any man who was not a member was not paying his whack, although taking his profits.

MR. HICKISSON recalled that last year he drew special attention to the matter of the retail membership. He suggested that a small permanent sub-committee should be appointed, called the Membership Committee, and that it should tackle this subject. The real reason for the present position was that a great number of young men were now in pharmacy who had not the ghost of an idea of the price cutting which prevailed twenty years ago. If they were properly educated on the subject and it was forcibly brought to their minds what "cutting" meant and what it might mean if they did not strengthen the Association he was quite sure they would be ready to pay their 7s. 6d.

MR. WATSON referred to Mr. Keith's suggestion that members of the Association should induce retailers to join, but added that some of them had a distinct grievance. It was not members of their profession who were cutting, and in North London the trouble was caused by the private trader. A good many people were opening up shops, and where there was an article with a little bit of "jam" to it such traders were undercutting. He knew, for instance, that the Council had been doing their best to stop a man not far away from him from selling patent medicines, but these things were still on sale, labelled twopence less than the price charged by chemists. He wanted to know what the Council were going to do about such cases. Although through their powerful machinery the Council had done a splendid thing for the trade, he did not want them to rest on their laurels, and he did not see how he could recommend his neighbour to come into the Association while there was another man not many yards away undercutting. The Council had got one man to sign an agreement that he would not sell a certain article below the recognised rate, but now that the matter had died down the trader had resumed cutting.

MR. I. T. LLOYD said he had been told that some chemists were now selling Elliman's, and asked if the firm were giving better terms. If some chemists had it he considered that others ought to have it. He also suggested that the membership of the Association might be increased if the President visited the various districts and tried to stir up interest in its work.

SIR WILLIAM GLYN-JONES pointed out that many preparations are sold through channels which are not strictly drug-trade channels, and there is great difficulty in dealing with a cutter who is not handling the general run of articles which are handled by chemists. Foods and toilet preparations, for instance, go through a larger number of wholesalers than articles of a medicinal

character. In the case already mentioned the man signed an agreement, and it was almost impossible to refuse a man's agreement in the first instance when he signed it. He, at any rate, would then have had his chance, and if he broke the agreement the Council would want something more than that next time. It might be a consolation to Mr. Watson to know that the Committee had had an interview with the proprietor of the article in question, which is sold outside the drug-trade, and an undertaking has been given of a change in the character of the distribution of the article which promises well in being able to protect the chemist in future. The Council had got to bear in mind these things, and the time might come when some articles should come off the list. He did not think it would be a bad thing if certain prominent articles were off the list, and were cut to the bone, for he believed the Association would then have a big increase of membership. The real trouble was that everybody had come to accept the present retail profits as if they were the rain from heaven, and if there is any cutting they said, "What is the good of the Association?" They might just as well suggest the abolition of Scotland Yard because one thief managed to elude capture. The reduction of the retail membership, however, was not quite so bad as the report suggested, for it was calculated on the number of retail subscriptions received during the year. As a consequence of the combination with the Retail Pharmacists' Union last year, some of the subscriptions had come in two months later than they otherwise would have done. But for that fact they would have been received during 1921 and included in the accounts submitted that day. In regard to Elliman's the position is that Mr. Elliman had refused to supply prominent members of the wholesale section for the sole reason that they are officers of the Association, and because something had been said in criticism, and, as the firm thought, unfair criticism. Mr. Elliman had said he would select two wholesalers whom he would refuse to supply with his goods. The whole of the other members then said: "If Elliman's are going to boycott you for something some individual has said, and not for what you have done, we will not carry stocks of his article." Thus it came about that the wholesalers had not stocked the goods in question, and in the majority of cases retailers had not ordered, or attempted to order, the articles. But there are a few isolated cases of people outside the Association who are stocking Elliman's Embrocation.

The PRESIDENT reminded the members of the state of affairs which prevailed twenty-five years ago, when pills which were sold retail at 9d. had to be bought from the wholesaler at 8s. 8d. a dozen boxes and cost the wholesaler, who had also to pay carriage, 8s. 6d. That was an example of conditions when they brought the Association into existence, despite the scoffing of some men who were now members of the organisation. What Mr. Hickisson had said about the membership should receive the attention of the Council, and Mr. Lloyd's suggestion that the names of members should be published would come under the consideration of the Executive Committee when the year-book came to be printed. But during the last year or two the Council had been faced with difficulties, and did not think they were justified in spending £200 a year just for the sake of printing the names of the members. The Council, however, would again take the matter into consideration. The report was adopted with acclamation.

The PRESIDENT paid a cordial tribute to Sir William Glyn-Jones, and also spoke highly of the services of Mr. Hildreth Glyn-Jones, whom he wished, on behalf of the Association, the greatest possible success. (Applause.)

SIR WILLIAM GLYN-JONES acknowledged the compliment, and a hearty vote of thanks to the President concluded the proceedings.

THE chemical industries in Italy are anxiously awaiting the decision of the Government on the question of the reparations in kind to be secured from Germany, as the fate of the dye works will depend largely on the action taken.

Retail Pharmacists' Union

A MEETING of the Executive of the Retail Pharmacists' Union was held at 19, Tavistock Square, London, W.C., on July 18. Mr. T. Hardy took the chair, and there were present Messrs. Atkins, Atkinson, Barnes, Bates, Clarke, Forster, French, Gilleghan, Hague, Hindle, Joseph, Keall, Keith, Marshall, Martin, Matthews, Melhuish, Miller, Ridyard, Rowsell and Trummer. Among the matters considered was a suggestion from the Ministry of Health for the inclusion of two new dressings, "Standard Dressing No. 1," and "Standard Dressing No. 2," in the schedule of appliances in the Drug Tariff. Standard Dressing No. 1 will be a packet containing: Double cyanide gauze, 60 grains; absorbent cotton wool, 180 grains; and a 3 yards, 1 in. grey open wave bandage. The No. 2 will be a packet containing: Boric lint, 240 grains; cotton wool, 180 grains; oiled paper, 6 in. by 6 in.; and a 4 yards, 2 in. grey open wave bandage. The Ministry has ascertained that manufacturers will be able to supply these standard dressings. The medical authorities having approved the principle of a standard dressing, and the Ministry of Health being of opinion that these dressings would be a great convenience to panel practitioners, the Executive reluctantly accepted the Ministry's suggestion. Only one fee will be payable for these standard dressings, but in all probability they will be supplied in cases where normally only one or other of the articles in the packet would have been ordered in a case. The opinion was expressed by the Executive that if these dressings prove a real convenience in insurance dispensing work, they would probably become popular with the general public as a stock dressing for emergencies. Before these dressings are introduced, notice will be given by the Ministry through Insurance Committees direct to the chemists.

The secretary reported receipt of letters from the most prominent wholesale houses regarding the supply of scheduled poisons to unqualified retailers. He stated that without exception these firms had indicated that it was not their practice to send scheduled poisons to unqualified retailers, and thereby assist them in breaking the Pharmacy Acts.

The secretary reported the receipt of the following letter from the Home Office, which had been written to because of a case which had been reported to the Chemists' Defence Association:—

With reference to your letter of the 1st inst., I am directed by the Secretary of State to say that he is not able to comply with the suggestion made therein. The Regulations made under the Dangerous Drugs Act, 1920, require a prescription for the drugs to be signed with the full name, i.e., the Christian name or names as well as the surname, of the medical practitioner giving it, and the Secretary of State does not think that there is any sufficient ground for altering the requirement which was settled after full consideration by the Departmental Committee on the Draft Regulations under the Dangerous Drugs Act, 1920.

The request made by the secretary was that initials for Christian names should be accepted as a sufficient signature by a medical man.

London (S.W.).—The annual meeting of the Branch took place at Balham on March 11, Mr. E. A. Atkins in the chair. The treasurer's report, which showed a credit balance, and the secretary's report having been read and approved, the following officers were elected for the ensuing year: *Chairman*, Mr. E. A. Atkins (re-elected); *Vice-chairman*, Mr. E. Skues; *Treasurer*, Mr. J. A. Rees; *Secretary*, Mr. R. T. Fennings. *Committee*, Messrs. Keall, Mills, Monaghan, Moore, Pretty and Thomas. The Wimbledon branch having agreed to join the South-Western branch, the area now covered is Wandsworth, Lambeth, Battersea, and Wimbledon. Discussion took place on the Shop Hours Act Amendment Bill, and it was agreed to write to local M.P.'s asking them to vote against it. A scheme for co-operative buying amongst members was submitted by Mr. Skues, and received general support, the Council being asked to submit details. It was also agreed to bring up for consideration by the R.P.U. the sale of drugs under branded names at very small profit.

Personalities

DR. HENRY M. WHELPLEY has retired, after thirty consecutive years of service, as permanent secretary of the Missouri Pharmaceutical Association.

MR. E. H. PYM, chemist and druggist, Llandaff North, who has been convalescing at Minehead, has recovered from his illness and will shortly return to business.

MR. DAVID A. EVANS, chemist and druggist (Steele Marsh, chemists); Bath, recently gave an address on the subject of "Trade and Commerce" before the Warminster Chamber of Trade.

MR. D. G. TUNGATE, 5 York Place, King Street, Leeds, has been appointed sales representative in Yorkshire and the Northern Counties for Lysol, Ltd.; and Mr. Robert Telford, 6 Union Street, Glasgow, has been appointed agent for the whole of Scotland.

MR. HAROLD EDWARD MAKEPEACE, head of the foreign sales department at the chief offices of Burroughs Wellcome & Co., has been presented with a gold watch, with inscription, to commemorate the completion of twenty-five years' service. Mr. G. E. Pearson, general manager, in making the presentation on behalf of the firm, congratulated Mr. Makepeace on his long and much-appreciated association with the foreign business of the house.

PROFESSOR HENRY GEORGE GREENISH, D.Sc. (Paris), F.I.C., F.L.S., Ph.C., whose portrait as President of the British Pharmaceutical Conference appears on page 145 of this issue, is the son of the late Mr. Thomas Greenish, Ph.C., a pharmacist well known to a former generation as President of the Pharmaceutical Society from 1880 to 1882, and of the Conference in 1886. Henry George Greenish was born in London in 1855, attended the Philological School, and served his apprenticeship in pharmacy to his father. He won a Bell scholarship in 1875, and in the Bloomsbury Square School session of 1875-77 was awarded five silver medals in addition to that of the Society. After passing the Major examination he was for a time a demonstrator in the chemical laboratory of the school, and then continued his studies at the Universities of Dorpat and Vienna. Returning to England, he was appointed a lecturer in the Pharmaceutical Society's School in 1890 and a professor in 1893. For many years past he has been Dean of the School. Professor Greenish took an active part in the preparation of the British Pharmacopoeias of 1898 and 1914, in the latter instance being joint editor; and a further service of a national character was rendered by him in 1911, when, together with Sir William Glyn-Jones, he undertook a tour in various Continental countries for the purpose of gaining information on the working of health insurance schemes. His published works include the "Introduction to the Study of Materia Medica," of which a revised edition appeared in 1920; "The Microscopical Examination of Foods and Drugs"; and (in collaboration with the late Monsieur Collin) an "Anatomical Atlas of Vegetable Powders." Numerous monographs from his pen, on such typical subjects as simaruba bark, cantharides, ipecacuanha root and senna leaves are also to be found in the pages of scientific journals. Professor Greenish's work in connection with the British Pharmaceutical Codex has extended over many years, and during the recent war he was constantly occupied on problems submitted by Government departments. In 1917 he was the Hanbury Medallist of the Pharmaceutical Society. Since the Armistice Professor Greenish has been engaged in fresh research, particularly in investigating the occurrence of santonin in various species of *Artemisia*. In 1920 the honorary degree of Docteur de l'Université de Paris was conferred upon him, and it is difficult to recall another instance of so eminent a scientific distinction being held by a pharmacist. In private life Professor Greenish, who celebrated his silver wedding on July 15, is an expert photographer and enjoys a game of golf. His only daughter is pursuing the study of medicine. From the year 1891 onwards the "Year-Book of Pharmacy" bears ample witness to his versatility in research; and it is fitting that his many services to pharmacy should be recognised by his occupancy of the chair of the Conference.

Births

FARQUHAR.—At Viewforth, Strichen, on July 22, the wife of Douglas G. Farquhar, chemist and druggist, of a son.

WILLIS.—At 1 Straits, Easton, Isle of Portland, on July 15, the wife of Charles J. Willis, chemist and druggist (née Hancock), of a son.

SKIDMORE.—At 22b High Street, Sutton, Surrey, on July 25, the wife of Robert R. Skidmore, chemist and druggist (manager, Sutton branch, Parkes' Drug Stores, Ltd.), of a son.

Marriages

DUNBAR—POOLE.—At St. Oswald's Church, Millhouses, Sheffield, on July 20, by the Rev. S. Davidson, John Peter Dunbar, M.P.S., to Jessie Poole.

CLEGG—TEE.—At the Enon Baptist Church, Burnley, on July 15, H. Clegg, chemist and druggist, son of Mr. Clegg, Elm Street, to Dorothy M. Tee, daughter of Mr. J. M. Tee, Nelson Square.

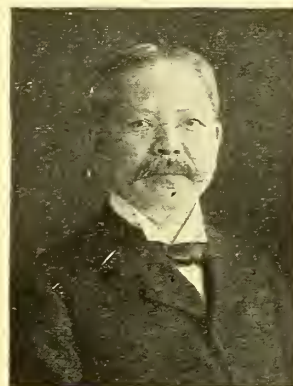
KERSHAW—STAMP.—At St. James's Church, West Kirby, Liverpool, on July 20, by the Rev. Harold E. Crewdson, M.A., Frank Kershaw, second son of the late Mr. Edmund Kershaw, Huddersfield (a director of Dols & Co.), to Madge Goodwin, only daughter of Mr. C. C. Stamp, Tue Brook, Liverpool.

MCCLURE—KIRKWOOD.—At the Methodist Church, Newry, co. Down, on July 14, by the father of the bride, assisted by the Rev. J. A. Walton, M.A., and the Rev. Irvine Kirkpatrick (brothers-in-law), Andrew McClure, M.P.S.I., Hill Street, Newry, third son of the late Mr. Andrew McClure, Ballintra, co. Donegal, to Hazel Muriel Kirkwood, B.A., youngest daughter of the Rev. James Kirkwood, Newry.

Deaths

CHAPMAN.—Recently, Mr. Daniel Chapman, R.D. Mr. Chapman, who carried on business in Portadown, from which he recently retired, passed the Registered Druggist examination in 1892. He was also interested in the jam manufacturing industry.

TAKAMINE.—The death occurred in New York, on July 22, of Dr. Jokichi Takamine, F.C.S., the eminent Japanese chemist, originator of taka-diastase, and discoverer of adrenalin. Born at Takaoka, Japan, in 1854, Dr. Takamine, after studying chemistry in Japan came to study at Glasgow and then returning home in 1881, was appointed head chemist to the Japanese Department of Agriculture and Commerce. In 1890 he settled down in the United States, having married an American lady in 1887. It was while a student at Glasgow University that Dr. Takamine entered upon the investigation of the rice ferment, which resulted in his discovery that the preparation of sake (Japanese rice-beer) does not depend upon a yeast-like malt, but is promoted by a micro-organism which produces diastase. As a result of that investigation taka-diastase was manufactured on a commercial scale. In 1900 Dr. Takamine discovered adrenalin, a substance which he extracted from the suprarenal glands of sheep and made possible bloodless surgery in many minor operations. Dr.



DR. J. TAKAMINE

Takamine was consulting chemist to Parke, Davis & Co., Detroit, and President of the Takamine Laboratory, Inc., the Takamine Ferment Co., the International Takamine Ferment Co., and the Sankyo Co. (Tokio). He was one of the first to take a degree at the Imperial University of Japan at Tokio. He introduced chemical works, dye, aluminium, and other industries into Japan, although the greater part of his active life was spent in the United States. Dr. Takamine visited London on several occasions, and in 1901 was entertained to dinner by some of the leading medical men, when he gave an interesting discourse on physic in Japan.

HAZLITT.—At North Terrace, Northgate End, Bishop's Stortford, on July 16, suddenly, Mr. Frank Hazlitt, chemist and druggist. Mr. Hazlitt, who qualified in 1892, was for some time manager to Parrott's, Ltd., chemists, Bishop's Stortford, and had latterly become a partner in a North London pharmacy.

GOFF.—At Hawley, Dartford, on July 17, Mr. Walter Edward Goff, Ph.C., aged 60. Following an apprenticeship in Birmingham, Mr. Goff gained further experience in Stafford and Liverpool, and, after passing the Qualifying examination, at Cheltenham. After passing the Major examination he was with Giles, Schacht & Co., Bristol. Mr. Goff entered into partnership with the late Mr. A. E. Horrell, chemist and druggist, High Street, Dartford, more than thirty years ago, and on the dissolution of the partnership became the sole proprietor of the business. He retired a few years since. Mr. Goff was a member of the first Dartford Urban Council, and also served as a poor-law guardian.

TURNER.—At 160 Holme Road, West Bridgford, Nottingham, on July 22, Mr. James R. J. Turner, secretary of the United Drug Co., Ltd., aged forty-three. Mr. Turner, who had been in failing health for some time, joined the staff of the United Drug Co. in 1912. He was appointed secretary and a member of the board of directors in January last.

Trade Notes

EVER READY DRY CELLS.—The Ever Ready Co. (Great Britain), Ltd., Hercules Place, Holloway, London, N.7, have issued a new general catalogue for the coming season, for which orders are already being placed. The catalogue gives illustrations and prices of dry cells and batteries, pocket lamps, reading lamps, etc. It is the most useful list of the kind with which we are acquainted.

RENAL BATH SALTS.—Arthur H. Cox & Co., Ltd., manufacturing chemists, Brighton, send us a sample of the Renal bath salts which they manufacture. The bath salts are used for tired, tender feet, etc., and the article is packed in an attractive style. Provision has been made for printing the name and address of the seller on the label, when quantities of six dozen and over are ordered. Window-bills have also been prepared to help the sale.

APOLLO LIQUORICE JUICE.—Supplementing the note in this column last week, Macandrews & Forbes, Ltd., inform us that the stick liquorice is made in three sizes, 1 oz., 2 oz., and 3 oz., and is attractively packed in 4-lb. cartons in cases of about 1 cwt. Only the actual nett weight of liquorice is charged for, and buyers do not have to pay for bay-leaves used as packing. "Apollo" juice is guaranteed to be pure extract of the root, without added substance.

ITALIAN OLIVE OIL.—The consumption of olive oil in Italy during 1921 was much below the 200,000 tons consumed before the war, and exports to foreign markets were considerably reduced by offers of Greek, French and Spanish olive oils, which replaced 30,000 tons of the Italian product. The council of the Associazione Oleifici e Raffinerie d'Italia, after a long discussion, condemned the present Customs tariffs, accusing the Italian Government of favouring the importation of cotton-seed oil and soya bean oil, which have invaded the Italian market to the detriment of olive oil. An increase in the import tariffs on all foreign raw and refined oils is asked for by this body.

The Hyposulphite Case

THE following circular has been issued by the British Chemical Trade Association:—

"Uncertainty seems general throughout the trade as to the Referee's decision in the sodium hyposulphite appeal case. The Government Departments concerned with interpreting this decision are not disposed to give any definite information. They state that hypo. soda, photographic quality, will be liable to the duty, but when asked what constitutes 'photographic quality,' they will not say. In the meantime the Association make the following suggestions and comments."

The Referee's decision is as follows:—

"I therefore award that the list be amended by inserting after the words 'sodium hyposulphite' the words 'photographic quality.'"

He (the Referee) defines "photographic quality" thus:—

"I wish it to be clearly understood that the mere fact that sodium hyposulphite is in pea crystal form does *not* prove that it is photographic quality. In my opinion, photographic quality indicates that the chemical is in the form of small uniform crystals, that it has great purity of colour, and is of 99 per cent. (or thereabouts) purity and upwards."

It is therefore assumed that only those pea crystals of 99 per cent. (or thereabouts) will be considered as photographic quality and deemed liable to the duty, and that pea crystals of a lower percentage than 99 per cent. (or thereabouts) as now free of duty on import and they will no longer be looked upon as "photographic quality" by Government Departments.

It looks as if the Referee has endeavoured to apply the Act and the import duty it imposes on imports of pea crystals of sufficient purity for analytical purposes only, and that imports of a quality not good enough for this purpose, but quite good enough for photographic use, will be allowed in free. We understand that the average of the imports since the Act has been in force has been from 97 to 98 per cent., with some few lots touching 99 per cent.

Importers of pea crystals of under 99 per cent. should see that their documents are made out to conform to the new rulings, in the following manner:—

SODIUM HYPOSULPHITE for industrial purposes; or **SODIUM HYPOSULPHITE**, pea crystals, for industrial purposes. Do not specify them as "photographic quality" unless they are such; i.e., 99 per cent. or higher. It would be as well for the time being if they were entered at Customs on a "bill of sight." This leaves it to them to decide. In cases where duty is demanded they should be asked to furnish evidence of the analysis. In instances where the importer is of opinion that duty should not be collected the Association would be glad to take them up on their behalf. Some foreign makers may adopt the idea of adulterating 99 per cent. material with 5 per cent. of some non-injurious material. In such cases Customs will no doubt bring into force Section I. (4) of the Act, which provided for duty to be levied on the dutiable article which is part of a compound article, as this would then be considered by Customs.

Information Department

INFORMATION WANTED

B/287. Bloomstury syphon douche.	M/257. Kalzine.
M/287. Butyn.	P/257. Ky'onia.
A/137. Comfortis.	M/127. "Manchester Girl" perfumes.
M/257. Cokay nerve tonic.	B/267. Neurobora.
M/27. "Famel" brand acid proof tinware.	S/177. "Thinzu" tablets.
P/287. Haemo hyroidin.	B/287. Vacuum feeding bottle.
	B/247. Whiff's bug killer.
	L/227. White Daphne perfume.

INFORMATION SUPPLIED

Akoll Biscuits. A/147	Dustolio for floors. S/217.
"Alcresta" specialities. H/127	"Estelle" feeders. S/177
"Arova" depilatory. D/197	Fell's shampoo powders. B/157
Barnett's cold cream. E/147	Globe liquid soap. H/197
"Betterway" advertising signs. B/147	Hormonax. A/247.
Cremopid. S/217.	Iron jelloids. B/247.
Draughtsman digestive tablets. B/187	"Izal" disinfectant. W/267.
	"Kathe" face cream. B/247.
	"Kensal" iodine. B/456.

Observations and Reflections

By Xrayser II.

Refined "

is obviously a comparative term, and is so accepted by everybody. It would not, I suppose, be denied that even the famous charabanc party, though its members did exchange hats and carry on generally pretty much like costermongers at Epping on a Bank Holiday, was correctly described as "so reformed" in comparison with the society in which the singer of the song is supposed to have habitually moved, and the letter R in the Schedule of the Safeguarding of Industries Act has consequently no absolute significance. Some other qualification is necessary to make the quality implied at unmistakable; the Referee got out of the difficulty neatly, but if a similar course has to be taken in every doubtful case he has, in the words of Hosea Biglow, "a darned long row to hoe," and the lawyers and expert witnesses will have a merry time till the schedule has been disposed of.

Which Side Has Won ?

Certainly not the complainants. They have obtained a stricter definition of the Board of Trade's intention and thereby gained, perhaps, some advantage for themselves; but, speaking broadly, the complaint fails, as the Referee said. And, granting the premises upon which the Schedule was drawn up, the decision is a just one. It is an intellectual treat to follow the arguments on both sides and Mr. Atkinson's masterly summing-up.

Sir Alfred Mond's Reply

to Sir John Leigh's question about the supply of drugs of inferior quality to panel patients gives something to be desired. It might be inferred that the offence is a fairly common one, which is surely not the case, and that only "severe penalties" are found to act as a deterrent. It is true that Sir Alfred would not accept the charge that patients are frequently informed that drugs of better quality can be had by paying for them without proof, which, of course, was not forthcoming; but the mere fact that such a charge was made without a tittle of evidence in its support ought to have drawn from him a statement to the effect that the other offence is of extremely rare occurrence, and that there is no substantial justification for the inference evidently intended by the querist that Insurance dispensing by chemists is to an appreciable extent of an inferior quality.

Mr. Skinner

has acted wisely in withdrawing his price-lists from circulation. He is one of the most disinterested workers for pharmacy, but there was no object in continuing this publication at a loss now that we are so well provided for by other lists, and obviously one designed for London use alone could not compete with others of an equal value that are adapted for universal circulation. Mr. Skinner did not, we may be sure, look for personal profit as the object of his venture, and he deserves the thanks of all pharmacists for his efforts in their behalf. He has not been treated very generously by some of those who have benefited by his labours, but it will be a matter of general satisfaction to the trade that he has been able to withdraw without the loss of everything he had invested in his business. He, too, will have the satisfaction of knowing that his labour has not been lost.

Research Works

said Dr. Ruttan in effect, in his presidential address to the Society of Chemical Industry, should only be undertaken in any industry as a business proposition only (that is) if it pays; and he would apparently leave research in applied as in pure science to the State. If this means that no industrial firm should undertake research that does not demonstrably, which is as much as to say directly, add to its profits, the view seems to me a narrow and an unworthy one. The main object of business is, no doubt, personal profit; but this should

not be the only object, nor has it been so with most of the world's great captains of industry. An element of disinterestedness enters into the composition of most men, and why should it not be so with firms as well as with individuals? Even if higher motives are allowed no weight, and the honour accruing from public service has no market value, policy alone would condemn a too narrow interpretation of "profit." Research for its own sake has often proved indirectly profitable both as an exercise of faculty and in its ultimate commercial results. "In the morning sow thy seed, and in the evening withhold not thy hand, for thou knowest not which shall prosper," says the Preacher; and though we should sow with the hand and not with the sack, a certain liberality is more likely to "pay" in the long run than a "nicely calculated less or more."

The Tragedy of Mt. Everest

will not greatly have surprised anybody who had previously read the account of the reconnaissance of the mountain given by the leaders of the expedition of 1921 in the fascinating volume recently published under the title "Mount Everest," which made it quite clear that the summit could only be reached at great risk and in the most favourable circumstances. There was no intention of completing the ascent last year, but the record of what was done in the way of reconnaissance and the descriptions of the mountain and the country immediately round it, never before visited by Europeans, are of absorbing interest. The beauty of the Kama Valley especially aroused the enthusiasm of both the chief narrators. It is evidently a perfect paradise for the botanist, as well as for the mere lover of natural scenery, its flora apparently rivaling, if it does not surpass, that of Sikkim, with the additional attraction of being less well known. The beautiful photographs accompanying the text complete the impression conveyed of the grandeur of the three great heights which look into the valley, Mt. Everest itself being one, but neither photography nor description can do more than suggest the lavish beauty of this "garden of the Lord" at their feet.

Dr. Charles Singer

the President of the International Congress of the History of Medicine, contributes to the volume of essays recently published by the Oxford University Press, under the title, "The Legacy of Greece," an article on Greek medicine which everybody interested in the subject should read. The whole volume is of intense interest, but the essays dealing with Greek science, philosophy, and medicine are especially so. We are familiar enough with Greek literature and art to be aware of our indebtedness to them, but to many of us it will be somewhat of the nature of a revelation to discover the extent of our debt to Greece in the region of mere knowledge. We pay, indeed, lip-tribute to Aristotle, Theophrastus, Hippocrates, Dioscorides, Galen, but to most of us they are little more than names or curiosities. We are amused by their errors and amazed by the reverence with which they were regarded by our not very remote ancestors, but they do not interest us very seriously. As regards most of them the reading of this book should work a change in our minds something like that which Darwin (quoted by Dr. Singer) confesses with regard to Aristotle: "I had not the most remote notion what a wonderful man he was. Linnaeus and Cuvier have been my two gods, though in very different ways, but they were mere schoolboys to old Aristotle." It is, says Dr. Singer, the distinction of the Greeks that alone among the nations of antiquity they practised a system of medicine based not on theory but on observation accumulated systematically as time went on. Only they could look on their healers as physicians (naturalists), and that word stands as a lasting reminder of their achievement. For the rest, it is sufficient to quote here a sentence from the last paragraph of Dr. Singer's essay: "Modern medicine may be truly described as in essence a creation of the Greeks." The spirit of these old works, he concludes, is still with us; their very phraseology is still in use at the bedside.

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PARAFFIN

This Week's Conference

THE British Pharmaceutical Conference at Nottingham this week is, without doubt, the most momentous of the whole series. The Conference, under pressure from the Pharmaceutical Society, has resolved to abandon its free

and independent rôle, and in future the Conference is to be a subsidiary part of the Pharmaceutical Society. Whether this will be for the better cannot be stated definitely until some years have passed, but we hope that the absorption of this, the most popular element of British pharmacy, may help to resuscitate the scientific and professional side of pharmacy, which of late years has been neglected by the official representatives of pharmacy in Great Britain. The Conference has done excellent work for the drug-trade, and notwithstanding lack of adequate means, the annual meetings have infused new life into each district where they have been held. The "Year-book" has appeared each year, and the series forms a valuable epitome of the progress of pharmacy and the allied sciences. The meeting at Nottingham this week recalls the previous occasions when the Conference was held in that town. In the early days it was customary for the meetings to be held in the same place as those of the British Association, and hence, in 1866, the third year of the existence of the Conference, it took place at Nottingham. Professor Robert Bentley was the President, and his address dealt with the study of botany in connection with pharmacy. The novelty of the Conference was the exhibition of drugs and apparatus which had been organised by the Local Committee, and in these days, when exhibitions are overdone, we cannot but admire the Nottingham chemists for the enthusiasm which the first exhibition must have evoked. Mr. Ince's essay on pharmaceutical ethics attracted considerable attention, and it is interesting to record that his plea for the use of the term "pharmacy" in place of shop has borne fruit, although other suggestions made are still controversial. Nearly thirty years after the establishment of the Conference, in 1893, the venue was again Nottingham, and by a coincidence, the President, Mr. Octavius Corder, was again a botanist. He fascinated his audience with a study of Gerard and his herbal, a subject which was dealt with recently in *THE CHEMIST AND DRUGGIST*, in another aspect. Nottingham has always been to the fore in pharmaceutical education, and at the Conference in 1893, Professor Clowes was able to give an outline of the course for pharmacy students at the University College which was at the time, as regards pharmaceutical education, in advance of any other provincial centre. This year, the President, Professor H. G. Greenish, is, like Professor Bentley, a conductor of the Pharmaceutical Society's School of Pharmacy. Although not botanical, like previous addresses at Nottingham, the subject of pharmacology is sufficiently akin to keep up the tradition. The question of pharmacology in relation to the pharmaceutical curriculum was dealt with by Professor Greenish in a broad-minded manner. Taking Tschirch's definition of the scope of pharmacology as including botany, chemistry, physics, elementary zoology, geography, history, ethnology, etymology, as well as the collection and commerce of drugs, the President had no difficulty in filling a syllabus for candidates for the Pharmaceutical Society's examinations. Dealing with the educational requirements of students, Professor Greenish expressed the opinion that the standard of the present Preliminary examination is too low, and he considered that the discontinuity of studies which would result by the separation of the Qualifying examination into two parts would be a handicap to students. In regard to pharmacology as a subject for the final part of the Qualifying examination, the Professor would require the candidates to demonstrate the diagnostic characters of drugs, microscopically and chemically, and the time and training of students should be directed to this end. He dealt also with advanced studies for Major students and the post-graduate course adapted for University degrees. The new Ph.D. he considered as a goal for students to seek, the Manchester degrees in pharmacy being highly commended. The final suggestion was the establishment of an experimental station for pharmacology on the model of the Wisconsin University.

The address was a scholarly and thoughtful one, which the audience clearly appreciated for the high ideals which it expressed. In regard to the papers which followed the President's address, these were taken on Tuesday, and those that remained over filled up Wednesday morning. The number of papers was fewer than usual, and some were quite short notes on the subject to which the papers referred. Following our usual custom, we print full abstracts of the papers in this issue, followed by the discussions, but for convenience we give here the main point of each paper. The first one taken on Tuesday, just after the President's address, was a further note on *The Ether Solubility of Scammony Resin*, by Messrs. Harold Dean, B.Sc., and W. E. Edmonton, was prompted by a suggestion at the Scarborough Conference, that extraction in a Soxhlet apparatus gave concordant results. The authors described their experiments to show that to attain this end, conditions of working must be closely defined and indicated wherein the disadvantages of the method lay. Modern science has equipped the analyst with a wide range of instruments and methods to detect fraud. The practical utilisation of the fact that starch grains of various origin possess, within certain limits, a definite diameter enabling their individual recognition is contained in the communication presented by Mr. T. E. Wallis on *Some Characteristics of Wheat Starch*. This paper deals with the differentiation between wheat and barley starch, a task which is complicated by the fact that the diameter of the grains of both range between limits, the extremes of which are common to both. To overcome this difficulty, the author has succeeded in standardising the number of grains of extreme diameter normally present in wheat starch, as a basis for comparative tests in determining the presence, as an admixture, of barley starch. Strophanthus is one of the few drugs of our materia medica of which it is extremely difficult to establish the exact origin owing to the close resemblance of the seeds of the various varieties, and in view of its valuable properties all work elucidating further information concerning the same is to be welcomed. In his paper on *A Contribution to the Study of Strophanthus*, Dr. Karam Samaan describes a fresh variety of Strophanthus—*Strophanthus Preussii*—obtained from Southern Nigeria. His communication deals particularly with the physiological action of this variety, and in this connection it is interesting to note that for the evaluation of the therapeutic value of a drug, he gives preference to the results shown by the heart perfusion method over those obtained by ascertaining the minimum lethal dose, since the latter affords merely an indication of its toxicity, without reference to its actual effect on the heart. As indicated by the title of his paper, *The Arsenic Content of some Marine Algae*, Mr. A. J. Jones has found an interesting study in a somewhat unusual quarter. Seaweeds are of course of considerable importance in pharmacy, dietetics and also as cattle fodder, and a query arises as to whether in view of the percentage of arsenic present in certain varieties, their use should not be prescribed in the manufacture of foods. Mr. Jones takes the logical view that some regard should be shown as to what proportion the arsenic-containing seaweed is present in the finished article rather than have a rigid standard for the raw material itself. Mr. Jones puts forward the interesting theory in regard to the considerable variation on the proportion of arsenic in the different plants that they may be examples of bio-chemical reaction in equilibrium in the living organism, thus each plant varies in its capacity for forming arsenic compounds and, such compound being formed, a point of toleration is reached, analogous to equilibrium in solutions of chemical compounds. In a *Note on the Occurrence of Santonin*, Professor Greenish and Miss C. E. Pearson eliminate several drugs which have recently been brought forward in the search for possible sources of the valuable santonin. In *Artemisia brevifolia*, from Thibet, the authors verified their previous finding of

about 1 per cent. But in some Mexican species of *Artemisia*, no santonin could be found although several investigators have reported positive results. Messrs. J. H. Franklin and G. G. Hammond are to be congratulated on the work embodied in their paper, *Note on Acetum Scillae B.P.*, whereby they have succeeded in establishing the strength of this preparation. It is also of interest for the fact that it deals with one of the time-honoured galenical preparations, which of recent years have to a great extent been overshadowed, in the opinion of many to an unwarranted extent, by the newer products of the laboratory. Mr. Robert Fouracre, Ph.C., describes a simple instrument for *Taking the Refractive Indices of Liquids*. The apparatus is easily extemporised. The principle briefly is to obtain the reading by means of a real image instead of, as is usual, by parallax. A small quantity of the liquid is placed between a convex lens and a piece of plain glass or mirror, and a small electric bulb is used for the object, being placed at the focal distance of a convex lens. A beam of light is projected through the combination which is moved until a focus on a plane surface is obtained. A simple calculation gives the required result. Mr. Chas. W. Gosling, Ph.C., adds an interesting paper, entitled *The Viscosity Test*, to the literature of the subject. He describes in detail the most recent viscometer, the Mitchell Viscometer, of which he holds a high opinion and suggests that viscosity standards should be set for solutions of gum acacia, tragacanth, etc. Mr. Norman Evers has carried a stage further his researches on alkaloidal titrations as shown in his paper, *The Extraction of Quinine and Strychnine from Solutions of Varying Hydrogen ion Concentration*, which finds a highly practical outlet in a rapid and reasonably accurate method of determining the respective amounts of alkaloid in a mixture of quinine and strychnine, such as occurs in Easton's syrup. The process is based on the fact that while strychnine hydrochloride is dissolved by chloroform from acid solution, the amount rising with the degree of acidity, the reverse actually applies to quinine hydrochloride. For example, at pH 1, 33.4 per cent. of the strychnine salt was extracted with and only 0.5 per cent. of quinine hydrochloride. Mr. Charles M. Caines, F.I.C., gave an interesting note on *A Ferrocyanide Coloration of Tincture of Chloroform and Morphine, B.P.*, '85. In this he describes a method of distinguishing between the 1885 and the 1898 preparations and details exhaustive experiments made with a view to finding the source of the development of a green coloration in a solution of the '85 tincture, ultimately tracing it to the presence of a minute percentage of iron in the treacle. The difficulty, as the author points out, may be obviated by employing an iron-free treacle. A *Note on Cherry Laurel Water*, by Mr. Charles M. Caines, F.I.C., indicated that this preparation usually contains benzaldehyde and benzoic acid in concentrations which, it was shown, are intensely irritating to the conjunctiva, and consequently the author suggested that it should not be used in the preparation of eye-lotion. So far as the general usefulness of aqua lauro-cerasi is concerned, he recommended its deletion from the British Pharmacopœia. *The Rapid Estimation of Quinine Salts in Tablets* is the subject of an exhaustive study by Messrs. S. G. Liversedge and F. W. Andrews. They claim that their method, while equally as accurate, is an improvement, so far as the time required is concerned, on the previous method of digesting the tablets with acid, making alkaline, extracting with ether and drying, to say nothing of the difficulty of obtaining really anhydrous quinine by the method. The method is referred to as the E. T. (Ether and Titration) and is useful in research investigations as well as in works requirements. Briefly it consists of boiling with a stated quantity of N/5 sulphuric acid, combination with alkali in excess, removal and liberated alkalis with ether and estimation of excess alkali with N/5 acid with phenol-phthalein generally as indicator. The exceptions are indicated. It will be seen that the tedious process of drying

is eliminated. Mr. R. H. Crichton describes a simple routine method for *The Analysis of Milk Foods*, that is, in regard to the components actually derived from milk, namely, the fat, lactose and protein. The presence of fat in such preparations, it should be noted, tends to rancidity. The protein content is obtained from the amount of nitrogen present, as estimated by a Kjeldahl analysis, in the protein precipitated by liq. ferri dialysat from a known quantity of the preparation. The filtrate containing the lactose may be estimated by either Pavy's or Benedict's solution. The method of precipitation with colloidal irons was found to be unsuccessful with foods in which starch and cellulose were artificially present. In its ease, the protein was precipitated with alcohol.

Ceylon Citronella Oil

DURING the past few weeks the London spot price of Ceylon citronella oil has advanced from 1s. 10d. per lb. to 2s. 5d., the present quotation for drums, a figure which has not been reached for about eighteen months. Spot supplies are difficult to find, and as it is said that definite offers for shipment from Ceylon do not appear to be forthcoming, the probable trend of the market is a matter of interest. It is somewhat surprising to find that spot supplies are so scarce in view of the lengthy period of slackness among manufacturers and of the increased volume of imports both for the present year, to date, and for 1921. The actual imports, into the United Kingdom, from January 1 to June 7 (the latest available) were 78,066 lb., compared with 54,265 lb. for the corresponding period last year. But we understand that a large soap manufacturing concern recently brought in an important quantity which, though it helped to swell the shipments, did not come into the market. If we examine the returns for the year 1921, we find that United Kingdom imports were also in excess of those for 1920, the figures being, 1921, 268,392 lb.; 1920, 249,963 lb. It is noteworthy that towards the end of last year there was a run on oil which brought the price of 1s. 5d. at the time to 2s. 1d. by the month of March when interest died away again, and the value declined to 1s. 10d. It thus appears that, despite the slackness in trade, imports of citronella oil, which have been actually increasing, are inadequate to meet the manufacturing demand. Soap manufacturers seem to be turning more and more to citronella oil as a good and powerful perfuming agent. It has also been one of the cheapest raw materials obtainable for the purpose and, on this account, was very acceptable to makers, who have experienced what might be described as a "run" on cheap soaps, the purchasing public being unable or unwilling to pay fancy prices for "fancy" soaps—a fact which, by the way, explains the slump in bergamot and other expensive oils. One of the stock explanations as to the difficulty of obtaining supplies of citronella oil at the source is that the oil bearing grass has been uprooted to make room for a more profitable crop. That nothing alarming in this direction has been done recently may be gauged from the fact that the total exports of citronella oil from Ceylon during 1921 are larger than during any year since 1916. In an official review of the trade of Ceylon for 1921 we find that, although the production of citronella oil is only a minor industry, the oil is the only Ceylon product the exports of which have remained steady more or less in the past ten years. The actual figures are:

		lbs.			lbs.
During	1921	.. 1,215,645	During	1916	.. 1,399,791
"	1920	.. 1,015,310	"	1915	.. 1,675,456
"	1919	.. 1,050,989	"	1914	.. 1,453,520
"	1918	.. 1,048,202	"	1913	.. 1,602,481
"	1917	.. 1,211,197	"	1912	.. 1,420,306

The report goes on to state that: "In 1921, rates fluctuated between the more or less narrow limits of 70 and 80 cents. per lb. throughout the greater portion of the year, but in December the beginning of a decided advance took place

when prices jumped to 90-95 cents. Exports for 1921 are in excess of those for 1920, the distribution being as follows: "

	1921	1920
	Lb.	Lb.
United Kingdom ...	268,392	249,963
Germany ..	71,606	8,324
Australasia ..	92,291	99,854
United States ..	566,427	480,912
China and Japan ..	134,315	54,875
Other countries ..	82,614	121,382
Total ..	1,215,645	1,015,310

For some years before the war Ceylon citronella oil was sold at prices ranging from 10d. to 1s. per lb.; compared with such figures the present price of 2s. 5d. is relatively high. It is probable that the price has been run up entirely as a result of the spot shortage which has operated favourably for importers who have thus been able to release small quantities at high prices instead of bringing forward stocks from Ceylon. The figures given above, are sufficient indication of the steadiness of the world's demand for the oil, a fact which has no doubt encouraged the makers to keep on distilling. It will probably be found that there is plenty of citronella oil in Ceylon when shippers feel that the time for having it sent along has arrived. In the meantime it is unlikely that values will show a further rise, although prices may be maintained at a higher level than recently in view of manufacturers' preference for this oil.

The Uses of Isopropyl Alcohol

WE referred some time ago to the necessity of finding a cheaper solvent for certain purposes than ethyl alcohol, which cannot be used owing to the prohibitive duty that has been imposed on spirit. We had in mind the use of a substitute for spirit in the manufacture of liquid perfumes, and as there is now no hope of obtaining any relief from the high taxation imposed upon spirit, there is all the more necessity for continuing the search for other solvents. When we wrote about the matter recently we were able to state that isopropyl alcohol is non-poisonous without having had access to the reports of investigations confirming this. We now find from the "American Journal of Pharmacy," a *résumé* of several pharmacological studies of the properties of isopropyl alcohol. Dr. David I. Macht, of the Johns Hopkins University, found that isopropyl alcohol is twice as toxic as ethyl alcohol when injected intravenously into cats. The fumes of methyl alcohol killed rats exposed to them, in one or two days, whilst the vapours of isopropyl alcohol and ethyl alcohol, under similar conditions, had no effect on the rats. Professor Burton-Opitz, of Columbia University, found that 50 cc. of isopropyl alcohol administered by the mouth to a dog produced the same amount of muscular inco-ordination and gastric disturbance as 65 cc. of ethyl alcohol. Isopropyl alcohol applied to open wounds in concentrations up to 50 per cent. allowed healing to take place normally, and the alcohol in various strengths, injected into the jugular vein and instilled into the conjunctiva, was found to give the same effects as ethyl alcohol. It is stated also that no ill effects have followed the use of isopropyl alcohol externally in the manner that ethyl alcohol is generally employed, but in this country industrial spirits can be employed in many cases in the manufacture of preparations intended for external use. There is, however, a wide field for the use of isopropyl alcohol in perfumery and in the manufacture of flavouring compounds where industrial spirits cannot be employed. The taste of isopropyl alcohol is somewhat bitter compared with that of ethyl alcohol, but culinary flavouring essences compounded with a proportion of isopropyl alcohol are already being sold. Owing to the small amount of flavouring essence required, the taste is imperceptible in the cake or jelly into which it is introduced.

Drug Index

THE changes in prices during the month have been few, but the index figure shows a greater fall than we have had to record for three months, this being due to the decline in the cost of quinine. There are only three other index drugs showing a decline; they are lin. camph. ammon. meth., oleum morrhue, and sodii salicylas. Against this there is a slight increase in linimentum terebinthina. Though the index fall is one of nearly 2½ points, the general conclusion of a percentage for depreciation cannot be deduced, owing to the fall being confined so largely to one drug. The deduction for depreciation can be made direct on quinine and quinine salts. So far as the other lines affect the fall, they amount to a decimal point only. The total decline is 2.3 points. In surgical dressings there is no change: we have to go back to last February to find a similar position. The figures to date are:

DRUGS (1913=100)

	1916	1917	1918	1919	1920	1921	1922
Jan. ..	263.3	198.8	207.6	232.9	315.2	239.0	182.0
Feb. ..	262.8	191.1	212.5	230.6	324.3	226.0	178.0
Mar. ..	264.5	185.0	215.2	216.2	336.4	215.8	171.3
April ..	266.1	183.5	216.5	207.0	345.8	212.8	170.4
May ..	265.3	188.1	224.6	196.0	344.6	209.7	169.8
June ..	270.4	191.3	221.8	200.9	362.7	207.5	161.2
July ..	259.4	193.9	217.0	202.3	341.4	200.4	158.9
Aug. ..	227.5	198.7	217.8	205.2	322.5	193.2	—
Sept. ..	210.2	201.7	219.7	213.9	334.6	188.1	—
Oct. ..	204.6	202.5	227.5	216.2	289.6	186.8	—
Nov. ..	202.5	203.0	242.4	216.4	268.2	188.9	—
Dec. ..	198.4	204.6	236.6	218.0	258.2	188.2	—

DRESSINGS (1913=100)

	1916	1917	1918	1919	1920	1921	1922
Jan. ..	133.0	202.0	390.5	478.4	390.2	268.8	214.6
Feb. ..	133.0	203.0	438.1	390.0	357.6	250.6	214.6
Mar. ..	140.0	205.0	438.1	276.2	405.8	250.6	209.0
April ..	141.3	204.5	483.1	286.8	400.4	256.6	203.4
May ..	153.0	274.0	483.1	268.8	402.4	256.8	201.2
June ..	153.0	240.0	483.1	268.8	408.2	256.2	197.4
July ..	160.0	264.8	483.1	231.3	445.2	244.4	197.4
Aug. ..	153.0	273.5	495.0	253.3	445.2	230.6	—
Sept. ..	153.0	291.3	501.7	270.1	406.6	230.6	—
Oct. ..	172.2	291.3	511.2	292.9	374.2	230.6	—
Nov. ..	191.5	316.5	513.3	308.7	365.2	230.6	—
Dec. ..	201.5	316.5	513.3	333.7	320.6	230.6	—

Gazette

Bankruptcy Acts

RECEIVING ORDER AND ADJUDICATION.

JAMES, E. W., Tanyrallt, High Street, Mountain Ash, 56 and 58 Oxford Street, Mountain Ash, and 33 Rheola Street, Penrhiwceiber, Glamorgan, dispensing chemist and druggist.

New Books

Harrison, C. W. Francis, F.S.S., F.R.G.S.—*The Trade, Industries and Productions of British South Africa*, 12 in. x 7 in. Pp. 196. 10s. 6d. Arthurs Press, Ltd., Woodchester. [This work, which is issued under the auspices of the Federation of British Industries, is a new and revised edition of the report (published in 1920) which the author compiled for the F.B.I. after completing a special investigation in British South Africa in 1919. The review is divided into three parts: (1) The Union of South Africa; (2) Rhodesia; (3) South-West Africa. Sections are devoted to the manufacturing industries, mining, agriculture, raw materials, etc., and the statistical data and trade notes relating to imports and exports have been revised for the year ended December 31, 1921.]

British Pharmaceutical Conference

Nottingham.

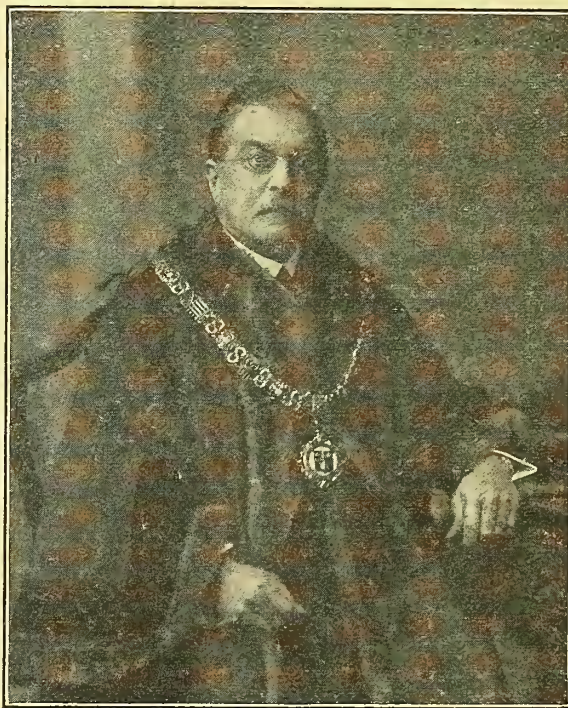
Report of Proceedings

NOTTINGHAM was the venue of the Conference for the first time in 1866. The meeting began on Tuesday, August 21, and concluded on the following Friday, with a dinner at which, said THE CHEMIST AND DRUGGIST of September 15, "those non-resident members who were fortunate enough to be present will long remember the hospitality of their Nottingham brethren." The attendance at the Conference was between fifty and sixty, all of the masculine order, and its first business was the election of seventy-seven new members, bringing the membership up to nearly 400. Among those who joined on this occasion were Messrs. Bourdas, Bremridge, Maw, T. Morson, T. N. R. Morson, Ransom, Savory, S. Shepperley, jun., and "the Rev. Mr. Carver, of Nottingham." Professor Bentley was in the chair, and the general secretaries were Professor Attfield and Mr. Richard Reynolds. Papers were contributed by Messrs. H. Deane, H. B. Brady, T. B. Groves, B. S. Proctor, W. A. Tilden, Charles Umney, Francis Sutton, Joseph Ince, J. C. Brough, G. F. Schacht, and other prominent men; and a feature of the Conference was "the first extensive exhibition of objects relating to pharmacy held in this country," including specimens sent over from the United States by Professor Edward Parrish and others.

Twenty-seven years later, on August 14, 1893, the Conference again assembled at Nottingham; and botany, which had scarcely been recognised at conferences since 1866 "as an integral constituent of the art of pharmacy," was once more made prominent in the President's address—Octavius Corder, like Bentley, being a practical botanist. The general secretaries were Messrs. W. A. H. Naylor and F. Ransom, both, happily, still with us; the chairman of the local committee was Mr. R. FitzHugh; and the local secretary was Mr. C. A. Bolton, the predecessor in business of Mr. William J. Clay, Carlton Street. The success of this Conference was acknowledged on all hands; the attendance (including a number of ladies) reached "about 200." Among well-known people present were Mr. A. H. Allen, Mr. F. Baden Bengel,

Mr. Frank Clarke, Mr. W. G. Cross, Dr. G. Claridge Druce, Mr. J. L. Ewing, Mr. E. H. Farr, Mr. A. W. Gerrard, Mr. (afterwards Lieutenant-Colonel) E. F. Harrison, Mr. J. Rutherford Hill, Mr. John Humphrey, Mr. James Jack, Mr. Peter McEwan, Mr. G. T. W. News-holme, Mr. A. J. Pidd, Dr. Charles Symes, Mr. E. White, and Mr. Robert Wright. Papers were read by Professor Clowes, Mr. E. J. Parry, Mr. E. M. Holmes, Mr. F. C. J. Bird, Mr. D. B. Dott, Mr. J. C. Umney, and other experts.

No more stately setting for a function can be desired than that of Nottingham Castle and its grounds, in which the Mayor of the city (Councillor F. Berryman) held a reception to the members of the British Pharmaceutical Conference on the evening of July 24, by way of prelude to the formal opening of the Conference on the following morning. The long-drawn English twilight lent a special quality to the grey distances to be discerned as the guests ascended the Castle hill, and few could be insensible to the charm of the place and the hour. Within all was brilliance and festivity. By the side of the Mayor stood the Mayoress and Professor and Mrs. Greenish, and the visitors, after being presented (and refraining from saying *morituri te salutamus*), passed into the Long Gallery, at one end of which was a ladies' choir, conducted by Mr. William Turner. In part-songs by Bantock, Walford Davies and others the choir highly distinguished itself, not only overcoming the monotony usually associated with this type of voice-grouping but also evidencing a satisfying command of tone-colour and an impeccable intonation. Vocal solos were also contributed and much applauded. Refreshments were served during an interval, and many of the guests took the opportunity of examining some of the pictures—of which Nottingham boasts an unusually fine collection. In the "Who were there" section on page 180 will be found the names of most of those present, and it is unnecessary, therefore, to do more than record the fact that the gathering was a large and representative one. The members of the Conference who took part in the civic reception will long remember the occasion.



COUNCILLOR F. BERRYMAN,
Mayor of Nottingham

Opening Session

Tuesday Morning—July 25

A bright, cool morning dispelled the doubts of those members of the Conference who had been dreading a continuance of the persistent showers of the past few days. The spacious lecture-theatre of the University proved amply large enough for a gathering of average size, and a few minutes after the scheduled time the President (Professor H. G. Greenish) claimed silence for the Mayor of Nottingham. The "platform" was larger than of late years, and comprised Dr. Charles Symes, Mr. W. A. H. Naylor, Mr. E. H. Farr, Mr. C. A. Hill, and Mr. E. Saville Peck (past-Presidents); Mr. D. Lloyd Howard (treasurer); Messrs. R. R. Bennett and C. H. Hampshire (general secretaries); Mr. F. Ross Sergeant (President of the Nottingham Pharmacists' Association), Sir William Glyn-Jones, Mr. A. R. Melhuish, Mr. F. W. Gamble, Mr. H. Deane, Mr. H. Finnemore, and Mr. E. White. Before the proceedings began the Mayor and the President were photographed standing together at the presidential table. The Mayor's speech of welcome was a model of its kind, brief, lucid, and eminently practical. His worship's tribute to the late Alderman Fitz Hugh was particularly gratifying to the audience, many of whom knew little of the work done

well-known felicity of phrasing. Professor Greenish, said Dr Symes, was "born a pharmacist." Mr. E. H. Farr, another past-President, briefly seconded, and Mr. W. A. H. Naylor, intermediate in presidential seniority between Dr. Symes and Mr. Farr, put the vote to the meeting, recalling as he did so that Professors Redwood, Bentley and Atfield had been predecessors of Professor Greenish in the chair of the Conference. The President, in replying, called attention to the Harrison memorial medal, which is awarded annually (*C. & D.*, I., 1921, p. 833). At this stage it was announced that charabancs were waiting for parties visiting lace works and St. Mary's Church, and most of the ladies, together with several of the men, took their departure. Apologies for absence were then announced, and the official list of delegates was read, the President remarking that it was a great pleasure to see so much interest taken by the local associations in the Conference. The reading of science papers was entered upon at 11 o'clock; before many minutes had passed the President suggested that the ladies present would not object to smoking, and the suggestion was adopted. There was a larger attendance than usual at the morning sitting of the science section, and the discussions were well sustained.

The PRESIDENT claimed the attention of the delegates for the Mayor of Nottingham (Councillor F. Berryman).

The MAYOR said: I have now, as Mayor of the ancient city, to offer to your Conference a very hearty welcome, and when one remembers that with which your Conference is principally concerned it is quite impossible for any person of years in Nottingham to fail to remember one of your members, who in days gone by was a very illustrious person indeed in this neighbourhood. I refer, I need hardly say, to the late Mr. Alderman FitzHugh. Few of you, I imagine, were here in 1893 when he, as the deputy-Mayor for the time being, did the honours of the Conference on the occasion of that visit. It was my privilege to know Mr. FitzHugh fairly well as a personal friend, as a professional man, and in Masonry, and I do not hesitate to say that he was a man who commanded, and deservedly commanded, the respect of everybody with whom he came into contact. He was a person of wide sympathies, a person who was always prepared to put at the disposal of those with whom he came into contact the very wide experience years had given him, and he passed away from us honoured and remembered by everybody in this city. Well now, ladies and gentlemen, you are here in Nottingham, the place I have christened, and I think deservedly, "the home of conferences." I have lost count of the number of conferences we have had in Nottingham during my year of office since last November. Here we are in the centre of commercial England, you may say, with a railway service which is rarely surpassed, and, I suppose, with a reputation for hospitality which is a parently regarded as satisfactory. Well, we are delighted to see you. It is extraordinary the ideas people get of different parts of the country. A week ago I was taking part in a meeting connected with the Boy Scouts. There were between 2,000 and 3,000 people present. In the place of entertainment there was a doctor from Westmorland who came to inspect their headquarters and to speak to friends. He said: "I am delighted with Nottingham. I thought I was going to see a place"—I said, "Well"—"like the worst parts of Sheffield. I was convinced I could not see the sky." I said: "You all form your own conclusions." For a commercial town you will go far before you see a place which, more than Nottingham, can give you every reasonable scenery and at the same time does its work so well. The University College is doing good work, and the members of the staff must have gained the good-will of you who take such an interest in scientific matters. This University College is doing magnificent work. We do not desire that it shall be the end, because it is our intention, all being well, that Nottingham shall be the centre, the



Photo]

[Cleworth

OPENING SESSION--THE MAYOR OF NOTTINGHAM ADDRESSING THE CONFERENCE

unostentatiously by this typical pharmacist. Nottingham, continued the Mayor, in lighter vein, was "the home of conferences"; he had lost count of the number that had been held since last November. The developments taken in hand in connection with the University were of great importance; they were rendered possible through the munificence of Sir Jesse Boot, who was generosity itself. The President, in thanking the Mayor for his welcome, drew loud applause by a reference to "the magnificent way" in which his worship and the Mayoress had received the members of the Conference on the previous evening. The Conference stood as the Mayor left the platform on his way to other civic duties, and many of the members had further experience of his hospitality at a garden party in the delightful Castle grounds in the afternoon, when the Nottingham City Police Band was in attendance. The President's address came immediately after the Mayor's departure. Professor Greenish's clear and authoritative delivery enhanced the pleasure of listening to his exposition of his views on pharmacognosy. The address, which occupied about forty minutes, is printed in full on pages 146-150. It was greeted at its close with prolonged applause. The usual vote of thanks was moved by Dr. Charles Symes (Liverpool) with his

seat of this Eastern University, of which the foundation stone was laid by Lord Haldane a few weeks ago. (Applause.) That University, if it is a proper expression, will cater for Nottingham and the surrounding counties, and if you can find time among your multifarious operations to go and see the site of that proposed University you will be delighted with it. It stands there on the hillside with woodlands hundreds of years old, and it is in a very delightful position, and, ladies and gentlemen, this morning it is fitting to remember that the possession of that site and the erection of that building has only been made possible by the generosity of one whose money I imagine came from that in which you are principally interested. Sir Jesse Boot has been generous itself. It is only fitting this morning we should refer to it. Well now, ladies and gentlemen, you want to get on with your work, and, to be quite honest with you, I want to get on with mine. (Laughter and applause.) I don't propose to stand in between you. I give you the heartiest welcome to this old city of ours, and I hope your Conferences may long flourish, and that you will enjoy your visit to Nottingham. (Applause.)

The PRESIDENT thanked the Mayor for the very cordial way he had welcomed them to the city. It was the third time the Conference had met in Nottingham. The two previous occasions were signal successes. The cordiality of the reception and the magnificent way in which the Mayoress and Mayor received the delegates the previous night would go far to make the meeting the success they hoped it would be. Hospitality had been shown in a manner in which it was impossible to speak of too highly. They had been entertained by a magnificent choir, and they had had the opportunity of seeing some of the art treasures in the Castle, and these, combined with the evident cordiality of the Mayor's welcome, had been appreciated by all of them. (Applause.)

THE MAYOR, in returning thanks, expressed appreciation of the kind references which had been made to his wife and himself. He trusted that their Conference would have every possible success, and that they would get out of it all the good which they deserved.

THE PRESIDENT then read his address, which is printed in full on pp. 146-150.

DR. C. SYMES (Liverpool) proposed a hearty vote of thanks to Professor Greenish for his able and eloquent address. He was specially qualified to speak on the subject on which he had addressed them. Their President possessed the qualities of a born pharmacist. He was a born pharmacist, and an able professor in his own work. There was no man in England whom the speaker knew who was a better qualified pharmacist than Professor Greenish's father, who knew the ins and outs of pharmacy. The Professor had referred to the question as to whether they were progressing. He (the speaker) was rather inclined to think that they were making marvellous progress since the time he could remember, in comparatively few years, in the knowledge gained by pharmaceutical students in the practice of their calling. He thought the pharmacist required to have some knowledge of the physiological action of drugs so as to know what were poisonous, and the compatibility of them. The question of a pharmacist getting part of his training in a pharmacy and partly a scientific training under professors and teachers, was a subject well worthy of their consideration.

MR. E. H. FARR (Uckfield) seconded, and in supporting, MR. W. A. H. NAYLOR (London) recalled that in days gone by such professors of the Pharmaceutical Society as Redwood, Bentley, and Attfield had occupied the position of President of the Conference. They would be gratified if a shorter interval was allowed to lapse before they had another professor or lecturer from the Pharmaceutical Society to preside over the annual Conference. (Applause.)

THE PRESIDENT, in reply, said they were all trying to do the best they could for pharmacy. The only thing was how were they going to do it? Opinions varied a little. Continuing, the President said it would be remembered that the year before last it was decided to raise subscriptions in order to perpetuate the memory of their old friend Edward Frank Harrison. The memorial took

the form of a medallion placed on the premises of the Society. It also took the form, in addition, of a silver medal to be awarded annually for research in the chemistry of drugs. This was an extra inducement for younger pharmacists to engage in some original work.

APOLOGIES FOR ABSENCE

It was announced that apologies for non-attendance had been received from the following:—

Mr. F. Ransom, Dr. D. Hooper, Mr. W. F. Wells, Mr. P. F. Rowsell, Mr. F. Pickington Sargeant, Mr. W. F. J. Shephard, Mr. E. M. Holmes, Mr. J. Braithwaite, Mr. J. Jack, Dr. G. Claridge Drace, Mr. H. Wyatt, and Mr. R. Robertson.

LIST OF DELEGATES

The list of delegates was read. They comprised representatives from the Pharmaceutical Society of Great Britain, the North British Branch of the Society, the Pharmaceutical Society of Ireland, the Birmingham Pharmaceutical Association, the Cambridge and District Pharmaceutical Association, the Devon Pharmaceutical Association, the Edinburgh Chemists, Assistants' and Apprentices' Association, the Liverpool Chemists' Association, the London County Pharmaceutical Association, the London (Western) Pharmacists' Association, the Manchester Pharmaceutical Association, the Oxford and District Chemists' Association, the Portsmouth Pharmacists' Association, the Public Pharmacists' Association, the Scarborough and North Riding Association of Pharmacists, the Scarborough Pharmacy Club, the Sheffield Pharmaceutical and Chemical Society, and the Wolverhampton and District Chemists' Association.

THE PRESIDENT welcomed the delegates. He said it was a growing pleasure to see so much interest taken in the proceedings of the Conference by the pharmaceutical associations throughout the country.

The Papers

The first paper read at Tuesday morning's session was:—

The Ether Solubility of Scammony Resin

By HAROLD DEANE, B.Sc., F.I.C., and W. E. EDMONTON.

[ABSTRACT.]

DURING the discussion on the paper read last year by the authors (Y.B. 1921, 316), it was suggested that extraction in a Soxhlet apparatus gave concordant results. Some experiments were therefore tried to test this, with the results given below. The figures are calculated to anhydrous resin.

Two Soxhlet extractors were used, one holding 90 c.c. when just about to syphon, the other holding 40 c.c. The resin used showed 96.0 per cent. of resin soluble in ether. The powdered extract was mixed with an equal quantity of kieselguhr and placed in a Whatman thimble in the extractor, the ether was placed in the distilling flask, and the extraction was continued for the times stated, the apparatus syphoning about eight times an hour. New thimbles were used for each experiment as the use of previously employed thimbles, even though well washed with alcohol and dried, produced discordant results. In the small extractor 1 gm. of resin and 50 c.c. of ether were used, in the large extractor 2 gm. of resin and 100 c.c. of ether, except in the case of the two experiments shown in the last line of the table, when 1 gm. of resin and 100 c.c. of ether were used in each extractor.

Time of Extraction	Percentage soluble in ether	
	small extractor	large extractor
	per cent.	
1 hour	87.3	—
2 hours	91.1	—
3 hours	94.1	—
4 hours	95.5	76.7
6 hours	95.9	89.4
8 hours	97.0	91.0
24 hours	97.0	91.0
24 hours	90.5	90.0

The results show that, to obtain concordant results the conditions of working must be very closely defined, and

he method possesses the disadvantage of introducing fresh factors of possible variation in the size of the extractor and the frequency of syphoning.

These experiments were carried out in the laboratories of Stafford, Allen & Sons, Ltd.

DISCUSSION.

THE PRESIDENT said that, though short, Mr. Deane's paper was none the less important.

MR. C. A. HILL said that evidence is not lacking that what passes as B.P. scammony resin is not the same thing as the ether-soluble resin of virgin scammony. If to an ethereal solution of scammony resin a further quantity of ether be added, a precipitate is obtained. Therefore there is precipitated an insoluble resin which is soluble in a strong ethereal solution of the soluble resin.

MR. F. H. ALCOCK asked what has become of the character of scammony resin. He could remember when it was described as entirely soluble. Again, what did Mr. Deane mean by ether? If it has 10 per cent. of alcohol present, this is bound to affect the result. He also asked if a fresh sample was used in each test.

MR. R. R. BENNETT brought forward a statement from Mr. T. T. Cocking (who was absent), showing that probably scammony contains two resins, as Mr. Hill had just suggested. His proposed method is: Digest 1 gram in 50 c.c. of dry ether with frequent shaking; decant 25 c.c., evaporate to dryness, and weigh the residue.

MR. DEANE, in reply, said that he believed the test to be of no value whatever; but if it were, and being included in the Pharmacopœia, his idea in bringing forward the paper was to show that it must be carefully done. In regard to Mr. Alcock's query regarding the ether, 0.735 dissolves the resin entirely, but 0.720 does not.

The next paper was:—

Some Characteristics of Wheat Starch

By T. E. WALLIS, B.Sc. (London), F.I.C.

Lecturer in Botany to the Pharmaceutical Society of Great Britain

[ABSTRACT]

Wheat starch closely resembles barley starch, and it is very difficult to be certain of either in the presence of the other. This difficulty is more particularly evident when one wishes to identify barley starch in admixture with wheat starch. The author never found grains of barley starch so large as 40 microns, the largest being slightly over 30 microns. This figure agrees with those given by other workers, none of whom gives values greater than 35 microns, excepting that Tschirch and Desterle add the remark that the grains certainly never exceed 42 microns, though they do not say that any greater than 35 microns had been measured. It may therefore be accepted as a well-established fact that 40 microns is the maximum size reached by grains of barley starch. It follows that, if wheat starch has been added to barley starch, its presence can be ascertained by measurement of the diameter of the largest grains present. The larger grains of wheat starch vary in diameter from 15 to 45 microns, reaching a maximum of about 50 microns, while those of barley never exceed 40 microns, so that, if the starch contains any number of grains measuring 40 microns and over, the presence of wheat starch is established. The next point of interest is to ascertain how many of the grains of wheat starch exceed 40 microns in diameter. For this purpose, a specimen of starch was prepared by kneading some pure wheat flour in a cloth under water and washing it by decantation with water and dilute acetic acid. The starch thus obtained contained 17.2 per cent. of moisture, and the number of grains larger in diameter than 40 microns was determined as follows: 0.3 gram of the starch was mixed with 0.1 gram of lycopodium, and the mixture suspended in olive oil. A drop was mounted on a microscope slide and the number of grains exceeding 40 microns was counted in two diameters of the preparation. This was accomplished by putting a squared micrometer into the eyepiece and adjusting the tube-length so that the sides of the squares represented

exactly 40 microns. The slide on which the starch was mounted was then placed on the stage and moved from one side of the cover-glass to the other by means of the mechanical attachment, and all grains which measured 40 microns and over were counted; the process was then repeated for the diameter at right angles to the first one. In these two diameters 18 such grains were present.

The number of lycopodium spores in the same two diameters was next found by counting the spores in eight fields evenly distributed along each, and the following numbers were found, viz.:—

First diameter ...	14, 21, 21, 18, 17, 11, 19, 16
Second diameter ...	18, 22, 22, 21, 20, 21, 20, 21

giving a total of 302 in 16 fields, or an average of 19 per field. The diameter of the field of view was 0.53 mm., and its area 0.22 sq. mm.; the diameter of the cover-glass was 19 mm., and the area of the portion moved under the microscope objective was therefore $19 \times 0.53 = 10.07$ sq. mm., and the number of fields in one diameter $10.07 \div 0.22 = 45.8$, and in two diameters 91.6. Hence, in two diameters there were $91.6 \times 19 = 1,740$ lycopodium spores, and since 94,000 spores weigh one milligram, there was $1,740 \div 94,000 = 0.0185$ milligrams of lycopodium. This weight of lycopodium had been mixed with three times its weight of starch, i.e., 0.0555 milligrams of starch, and therefore 0.0555 milligrams of the starch contained 18 grains of 40 microns and upwards in diameter, and one milligram of the starch contained $18 \div 0.0555 = 324$ such grains. Allowing for the moisture present, we have the final result that one milligram of wheat starch, dry at 100 deg. C., contained $324 \times 100 \div 82.8 = 392$ grains of 40 microns and over. In order to gain some idea of the proportion of these grains by number in wheat starch, a further count was made to determine the approximate total number of grains per milligram of the starch. This was very difficult to carry out, because many of the grains are extremely small, appearing very much like minute dots under the microscope, and the resulting figure can be regarded as only moderately approximate, and is, for various reasons, quite useless as a basis for calculations. Two parts by weight of lycopodium were mixed with one part by weight of starch and the whole suspended in oil. It was found that 972 starch grains were present for every 100 lycopodium spores, which corresponds to 2,207,000 starch grains per milligram of starch dry at 100 deg. C. The proportion of grains larger than 40 microns in diameter is, therefore, roughly about one in every five or six thousand. Determinations were next made for two samples of commercial wheat starch of the number of grains measuring 40 microns and over. These specimens gave the values 622 and 569 respectively, figures which are considerably larger than that found for the starch prepared in the laboratory. These results suggested the conclusion that variation in the method of preparation, and more particularly in the length of time allowed for sedimentation between the washings, might be responsible for the observed difference in the number of larger grains. It is obvious that the smaller grains would sink more slowly than the larger ones, so that, if the time for sedimentation is reduced, a larger proportion of small grains would be removed, resulting in an increased number of grains over 40 microns in diameter in the finished product. An experiment was therefore made as follows:—A sample of commercial wheat starch was taken, and the number of grains of 40 microns and over was found to be 367 per milligram of the starch dry at 100 deg. C., a figure much more nearly approaching that of the starch prepared in the laboratory. Thirty grains of this starch were soaked in water for 48 hours, so as to swell the grains thoroughly, and were then stirred in a large beaker with water having a depth of six centimetres, the volume being 330 c.c. After standing for one hour, four-fifths of the water, i.e., 264 c.c., were poured off. This was repeated five times, making six decantations in all. The residual starch was filtered out, dried and powdered. The number of starch grains larger than 40 microns was again determined and

found to be 846 milligrams of the starch dry at 100 deg. C., so that the washing had increased the number of these grains to about two and one-third times the number originally present. These experiments lead to some important conclusions:

1. Wheat starch is quite definitely recognised in the presence of barley starch by finding a number of grains measuring 40 microns and over.

2. Wheat starch and other similar starches composed of large and small grains intermixed, unless prepared by a standard process, cannot be characterised by the total number of grains per milligram nor by the number of grains exceeding a certain size. Such figures as have been published for starches of this type can therefore be regarded as possessing a merely academic interest.

3. In attempting the quantitative analysis of mixed flours, the analyst must prepare his own specimens of pure starches by a standardised process, and must apply the same process to the separation of starch from the mixed flour. For example, when an examination of the crude fibre from a flour has established the presence of barley in admixture with wheat, the amount of each present can be ascertained with a fair approach to accuracy by preparing specimens of pure wheat starch and of starch from the mixed flour by the standardised process and then making counts of the numbers of starch grains of 40 microns and over in the two samples of starch. The result can be still further improved by preparing a mixture of genuine flours in the proportions found and correcting the first result by using as a standard the number of large starch grains in the starch prepared from the mixture of known composition.

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DISCUSSION.

THE PRESIDENT, in inviting discussion, pointed out that work of this kind can only be carried out by workers who are prepared to exercise the necessary patience. Mr. Wallis's results, added the President, were exceedingly important.

MR. NAYLOR remarked that we had so little knowledge of what commercial wheat starch really is—probably a product derived from English and foreign wheat. He (the speaker) looked forward to Mr. Wallis's investigations on a mixed flour.

MR. F. H. CARR suggested that the deposition of starch grains might be studied with the aid of a centrifugal machine running at definite speeds.

MR. J. R. HILL said that, after some experiments with starches, he was inclined to think that the apparent variation in the relative number of large and small grains may result from the process of sedimentation used.

DR. MARTINDALE, after remarking that Mr. Wallis's paper was a splendid piece of research work, inquired whether he had attacked the problem of rice flour in wheat flour, and whether any standard had ever been set up for admixtures of this kind. During and since the war admixture in bread had been practised to an injurious extent, and if Mr. Wallis could aid us in this respect it would be of great benefit. The paper was a most painstaking one.

DR. SYMES was not sure whether the size of the grain determines the source of the starch; he found some years ago that the size may vary in the same kind of starch. He had used polarised light.

THE PRESIDENT, before calling upon Mr. Wallis to reply, remarked that the paper was a development of the lycopodium method of counting introduced by the author of the paper in 1916—the only method for quantitative microscopic work ever devised.

MR. WALLIS, replying to the discussion, agreed that we had very little knowledge of what commercial wheat starch is. Rice flour was very tedious to experiment with, on account of the smallness of the grain. The direct examination of bread was a very difficult problem. The effect of heat on starches might be studied. Polarised light was useful in some cases: potato starch polarised easily, but not wheat and barley starch.

Mr. Wallis was cordially thanked for his paper.

The next paper was:—

A Contribution to the Study of *Strophanthus*

By KARAM SAMAN, M.Sc., Ph.D., Ph.C.

[ABSTRACT]

THE characteristic botanical features of the different varieties of *strophanthus* seeds are so closely allied that it is difficult to identify them, and commercial samples are, therefore, admixtures of these. One of the species received by the author from the Southern Provinces of Nigeria proved to be *Strophanthus Preussii*; unfortunately the amount received was only about four ounces, which necessitated limiting the investigation to certain problems; and the following is a summary of the results obtained:—The seeds of *Strophanthus Preussii* are small, light brown in colour, pointed at one end and rounded at the other. The testa is villose. The taste is slightly bitter. Eighty per cent. sulphuric acid added to a transverse section of the seeds colours the endosperm pink and the cotyledons light blue. When a transverse section is placed in two drops of concentrated sulphuric acid with which 0.10 gram of ammonium molybdate have been mixed, the endosperm is coloured brown and the cotyledons sky blue. Percentage of moisture present in the drug = 3.8 per cent.

A straw-coloured oil was obtained on de-fattening the seeds by means of petroleum ether (boiling point 60° C.). Percentage of oil in the dried seeds = 29 per cent.

The presence of such a high percentage of oil in the seeds rendered their pulverisation difficult and the preparation of a No. 30 powder of non-defatted seeds impracticable. Therefore, the dried seeds were first reduced to a coarse powder, extracted with petroleum ether, reduced to a No. 30 powder, and then extracted with ether again to ensure complete removal of fat. To be able to trace the activity of the oil on the frog's heart, it was considered necessary to carry out heart perfusion experiments (method "Y.B. Ph. 1921," p. 396) of the following:—

(a) An emulsion of the unwashed oil. (b) A weak emulsion of the oil which was previously well washed with water. (c) The aqueous washings of the oil.

Heart perfusion experiments on a 1:2000 emulsion of the unwashed oil in gum* Ringer solution gave tracings which show the tonic effects of the drug. The heart was not arrested during the perfusion of the 1:2000 emulsion of the oil. The amplitude of beat was twice the size of the normal beat, and if now gum Ringer solution is perfused instead of the drug, the size of the beat is greatly reduced. In one experiment the perfusion of a 1:2000 emulsion of the unwashed oil was followed by a 1:500 emulsion of the unwashed oil with the object of arresting the heart. The heart, however, was not arrested except after 31 minutes' perfusion of the strong solution, and even then mechanical stimulus to the ventricle brought the heart to beat again while the drug was perfusing. The tracing shows marked and continued tonic effect without a permanent arrest of the heart during the perfusion of the drug. At the end of the experiment irregularity of beat set in and certain group beats are also noticeable. Heart perfusion experiments on the

* 1 per cent. of pure gum acacia was dissolved in normal Ringer's solution, and this is referred to as gum Ringer solution.

washed oil as well as on the aqueous washings of the oil show that:—

(a) There is isolated along with the oil of *Strophanthus Preussii* a small amount of the active principle—or principles—present in the seeds. (b) It is difficult to free completely the oil from the active principle by washing with water. (c) The active principle isolated along with the oil possesses the same pharmacological action on the heart as described under tincture of *Strophanthus Preussii*. (d) A high percentage of oil emulsified in gum Ringer solution renders the composition of the medium unsuitable for heart perfusion.

From the de-fatted *Strophanthus Preussii* seeds in No. 30 powder a 1:10 tincture was prepared, using alcohol 70 per cent.

BLOOD VESSEL PERFUSION EXPERIMENTS

An apparatus similar to that described by Wild and Noble Platt (*B.M.J.*, October, 1902, p. 1328) was used. A manometer was fitted in to control the pressure of perfusion which had to be the same for both reservoirs containing respectively the drugged and the undrugged saline solution. The brain and the spinal cord of the frog were destroyed. The cannula was tied firmly in one aorta, the other aorta was ligatured and the heart was removed to allow a free perfusion of vessels.

The bucket method of recording the rate of flow adopted by Wild and Noble Platt (*loc. cit.*) was preferred to the funnel methods described by Donaldson and Stevens in their paper on Digitaline (*J. Phys.*, vol. IV., p. 165). Each tilt of the bucket pulled the lever and this was traced on the drum. The tracings obtained on perfusing even strong solutions (one of tincture from which the alcohol was removed in ten of saline) of tincture of *Strophanthus Preussii* show that this drug does not influence the rate of flow through blood vessels to any marked degree. Very slight vaso-constriction was noticeable, and recovery could be obtained on reperfusing undrugged saline. On considering the dilutions and the effects produced by perfusing tincture of *Strophanthus Preussii* through (a) the blood vessels, and (b) the heart, it was found that whereas this drug acts powerfully on the heart, it has a comparatively negligible action on blood vessels.

HEART PERFUSION AND THE MINIMUM LETHAL DOSE

The M.L.D. by intralymphatic injection was determined on four batches of five frogs each. The one-hour method was used:—

M.L.D. for each 100 grams body weight of frog = 0.1188 c.c. of the 1:10 tincture of *Strophanthus Preussii*.

The amount of tincture required to arrest the heart in the perfusion experiments is greater than the amount required from the M.L.D. method by intralymphatic injection. This may be illustrated by considering the following results:—

HEART PERFUSION EXPERIMENTS WITH TINCTURE STROPHANTHUS PREUSSII (1:10)

(A) Weight of male frog ...	= 25.5 grams.
Temperature ...	= 16° C.
Pressure of perfusion ...	= 4 c.c. of solution.
Normal rate of heart beat ...	= 33 per minute.
Strength of solution perfused	= one of tincture in 200 of Ringer.
Time taken for the solution to arrest the heart ...	= 10 minutes 15 seconds.
Amount of solution perfused to arrest the heart ...	= 20.5 c.c.
Calculated amount of tincture perfused to arrest the heart	= .1025 c.c.
(B) Weight of male frog ...	= 24 grams.
Temperature ...	= 16.5° C.
Pressure of perfusion ...	= 4 c.c. of solution.
Normal rate of heart beat ...	= 31 per minute.
Strength of solution perfused	= one of tincture in 200 of Ringer.
Time taken for the solution to arrest the heart ...	= 9 minutes.
Amount of solution perfused to arrest the heart ...	= 18 c.c.
Calculated amount of tincture perfused to arrest the heart	= 0.090 c.c.

(C) Weight of male frog ...	= 27 grams.
Temperature ...	= 16° C.
Pressure of perfusion ...	= 4 c.c. of solution.
Normal rate of heart beat ...	= 29 per minute.
Strength of solution perfused	= one of tincture in 200 of Ringer.
Time taken for the solution to arrest the heart ...	= 9 minutes 30 seconds.
Amount of solution perfused to arrest the heart ...	= 19 c.c.
Calculated amount of tincture perfused to arrest the heart	= 0.095 c.c.

The results obtained from other similar experiments confirm the statement that under such conditions the amount of tincture required to arrest the heart in the perfusion experiments is greater than the amount required for the M.L.D. method by intralymphatic injection. This is favoured by the following considerations:—

MINIMUM LETHAL DOSE METHOD

- (A) The active principle remains in the organism, i.e., no loss of active principle.
- (B) Higher concentration of active principle in the blood.
- (C) Long period of time to poison the heart.

HEART PERFUSION METHOD

- The perfused liquid contains active principle after it has passed through the heart.
- Lower concentration of active principle in Ringer.
- Lesser period of time for arresting the heart.

If the heart perfusion method is to be used for quantitative work, for example, the determination of the strength of a tincture, the conditions of the experiments, especially the concentration of the solutions and the rate of flow, should be the same for the standard as well as for the tincture whose strength we want to determine, i.e., having fixed, once and for all, the conditions of perfusion and the dilution of the standard tincture to be perfused, one has to find out what dilution of the tincture of unknown strength has to be perfused under the same conditions to bring about the same result; and from this dilution the relative strength of the unknown tincture can be calculated. The results of the experiments are subject to the physiological factor, and consequently a sufficient number of experiments should be done. The M.L.D. by intralymphatic injection shows toxicity and not the therapeutic value, whereas the heart perfusion method, in addition to being delicate and reliable, has the advantage of being based on the characteristic action of the drug, and is a test for the therapeutic value of the preparation; moreover, the perfusion with normal Ringer that precedes the perfusion of the drug gives us an idea of the condition of the heart of that particular frog.

The author was unable to find any published work dealing with *Strophanthus Preussii*. The heart-perfusion experiments showed the value of the tonic effect of the drug. Good recovery of the arrested heart was always possible, and in one experiment good beats of the recovered heart were traced after 24 hours' perfusion with Ringer. It is probable that *Strophanthus Preussii* may have a good future in therapeutics.

The following are the main effects of the drug on the frog's heart:—

- (1) Increased force of beat shown by increased amplitude of beat.
- (2) Increased work done shown by increased out-flow through aorta, not only per beat but also per minute, i.e., the cardiac output is increased in spite of the slowing.
- (3) A more complete and prolonged systole.
- (4) Slower rate of beat due to a prolongation of both systole and diastole.
- (5) Diminished conductivity.
- (6) Arrest of the heart with permanence of the ventricular systole.
- (7) Quick and good recovery with tonic effect is obtained on perfusing undrugged Ringer through the arrested heart.

In the various perfusion experiments done in connection with this, as well as the other, varieties of strophanthus weak and irregularly beating hearts were met with. It was noticed that when an active preparation of the drug was used great tonic effect and regularity set in. The tonic effect was more pronounced than in the case of normal hearts. This points to strophanthus having a preferential tonic effect on an abnormal (diseased?) heart. The drug increases the amplitude of beat and produces a more complete systole, and shows this to a great extent

in a heart that is not already contracting to the normal dimensions."

DISCUSSION.

THE PRESIDENT said that the subject of Dr. Samaam's research was a species of strophanthus of which comparatively little was known.

MR. A. W. GERRARD said, while an unusual paper for the B.P.C., it served a valuable purpose for the pharmacist's art. He thought that all substances should have some sort of standardisation. Different varieties of strophanthus may have some slight variation in the strophanthin. He was not satisfied that crude or fine strophanthin had ever been obtained. The same might be said of glucosides in general. Mr. Gerrard referred briefly to the method of isolating glucosides by precipitation with tannin and removal of the tannic acid by a lead salt, adding that, as glucosides are not crystalline bodies, their purity is suspected, and this is where the physiological testing comes in. He urged the younger members to pursue the subject further and bring their conclusions before the Conference.

MR. R. R. BENNETT said that Dr. Samaam had made several tracings, which, unfortunately, were not included owing to question of expense. He went on to urge the establishment of a physiological laboratory by the Pharmaceutical Society, which, he said, would redound to the credit of the Society and be of inestimable value to pharmacists who could send their products there to be tested. Physiological standardisation, he thought, is coming to the fore.

MR. JOHN NOBLE (London) raised a query as to whether tincture of strophanthus should be prescribed in mixture form or in drops, and

MR. F. ROSS SERGEANT raised the same query.

MR. J. RUTHERFORD HILL said that, seeing questions were being raised outside the subject of the paper, he would remark that some patients, to his knowledge, who are taking strophanthus, suffer from acute diarrhoea. Sir Thomas Fraser, who introduced strophanthus to the medical profession, used to say that the glucoside was very easily decomposed and that the tincture should always be prescribed as drops.

MR. E. H. SIMMONS (Salford) thought the subject of the paper came near the dividing-line between medicine and pharmacy, but it was eminently one for the pharmacist, whose work it was to establish facts relating to drugs; it was for the medical man to apply them. He endorsed Mr. Bennett's remarks regarding the establishment of a physiological laboratory.

MR. FINNEMORE introduced a word of warning with regard to the physiological testing of drugs, pointing out that the chief difficulty, among many, is the varying susceptibility of the animal employed. The chemical side of testing must not be allowed to lapse, as when more was known of the constituents better results might be obtained from chemical determination.

MR. F. H. CARR instanced this paper as an example of the research required as put forward in the presidential address, and commented on the lack of knowledge regarding two most important substances such as strophanthin and digitalin. He advocated parallel researches by the pharmacognosists and chemists, and commended Mr. Bennett's scheme.

THE PRESIDENT, concluding the discussion, said that he agreed with Mr. Gerrard in regard to our ignorance regarding strophanthin. No solvent could yield it in crystal form, but amorphous strophanthin was twice as toxic as a reputed crystalline form. It should be somebody's business to examine the characteristics of the seeds if possible botanically, by introducing germination. The seeds of *S. Percussii* may possess advantages not offered by other species. But if introduced into medicine commercial supplies must be obtainable. There are large areas in recently acquired territory in West and East Africa where the plants could be cultivated under British control. The subject offers almost an unlimited field for research for the pharmacist trained in pharmacognosy and pharmaceutical chemistry.

A vote of thanks to Dr. Samaam concluded the morning session.

Tuesday Afternoon

The first paper taken at the Tuesday afternoon session was:—

Arsenic Content of some Marine Algae

By MR. A. J. JONES, Ph.C.

[ABSTRACT.]

FOLLOWING a complaint that a quantity of seaweed, supplied for a particular requirement, contained arsenic, the author found that although the complaint was justified, there was no satisfactory explanation, at the time, to account for the occurrence. A small investigation dealing with several different species of algae was made, with the results here given. Samples of seaweed were obtained from different parts of the country, as gathered from the rocks or shore. They consisted of so-called edible and non-edible varieties. The samples were freed from sand, as far as possible, and dried in a warm room. In one or two cases the specimen was rapidly washed in tap water, the superfluous water removed, and then dried. The quantities weighed out for the test were taken from the "air-dry" weed.

All the 11 varieties examined contained arsenic, varying from 125 to 7 parts per million. The larger amounts occurred in the coarser varieties, such as the Laminaria and Fucus tribes, thus roughly following the iodine content; the smaller quantities were found in edible seaweeds, such as *Ulva latissima*, *Gigartina mammillosa*, and *Chondrus crispus*. Pareira states that none of the alga family has poisonous properties. There certainly appears to be no record of any harm ever having come through their moderate use as food irrespective of variety. The reputation possessed by seaweed as a medicinal agent, has been often disputed, and results it may have achieved have been ascribed to its organic iodine content. But when one considers the amount of arsenic occurring in the medicinal varieties, they may not be so inactive as some are apt to assert; small doses of organic iodine and organic arsenic are admixed when use is made of fucus and its relatives. Carrageen or Irish moss is frequently employed in emulsions, and quantities were used in hospital practice, during the war, as an invalid diet. The Stornoway specimen is representative of the material used in hospital in Scotland. In a paper read before the conference last year by Dr. Paul Haas, Irish moss, used in place of gelatine in the military hospitals at Malta, was said to yield good results as an invalid diet. The arsenic content of Irish moss is, comparatively speaking, low, being only about 6 or 7 parts per million on the average. Mr. Jones did not suggest that the arsenic has any part in the successful results obtained in this case, but, he said, there is a point in connection with food standards that ought to be mentioned. It has been recommended that no article should be employed in the preparation of a food product that contains more than 1/100th of a grain of arsenic to the pound, that is 1.43 parts per million. If analysts were to insist upon the rigid observance of this recommendation, use could not be made of the moss for the above-mentioned jellies, for the preparation of emulsions, or as a clarifying agent for cordials and similar articles of consumption. That would be really an absurd position. In a pound of jelly, representing, say, half-an-ounce of moss, there would scarcely be more than one-thousandth part of one grain of arsenic present; and if the moss were used as a clarifying agent (usually done in the proportion of about one ounce to 150 gallons of the finished liquid), the resulting contamination would be something like one part in three thousand million parts, or 1/100th of a grain in 430 gallons. It is difficult to conceive how any serious importance could be attached to a matter of this sort. The speaker suggested that it is not sufficient to have a single standard for arsenic which is to be applied to everything that can be regarded as entering into the composition of a food. Some regard should be had to the proportions in which the ingredient is to be used. In Canada, for example, colours which contain as much as 10 parts per million of arsenic may be used in food, but they are restricted to 2 grains per pound.

Table 1 gives the different samples examined, the place of collection and the amount of arsenic found in the dry

weed. Under the heading "Prepared Samples" are given trade samples; the extent and the character of the preparation is, of course, undefined, but it is understood to be largely a matter of weathering and picking.

TABLE I.

Specimen	Gathered at	Arsenic Trioxide as parts per million
Halidrys siliquosa ..	Scarborough ..	40
Fucus nodosus	do. ..	60
Fucus vesiculosus ..	Beumaris ..	80
Fucus serratus	Hartlepool ..	90
Laminaria saccharina	Beumaris ..	70
Laminaria digitata ..	Hartlepool ..	125
Enteromorpha compressa	Do. ..	15
Plocamium coccineum	Bournemouth..	10
Ulva latissima	Hartlepool ..	8
Gigartina mammosa...	Arbroath ..	(A) 23
(three samples)		(B) 6
Chondrus crispus ..	Arbroath ..	(C) 19
		7

PREPARED SAMPLES.

Gigartina mammosa	Stornoway ..	6
"Irish Moss" (several samples)	Ireland ..	5 to 10
Do. Druggists' selected (several samples).	.. ..	5 to 11

OTHER PREPARATIONS.

Agar-agar	Wholesale druggist.	Nil.
Ext. Fuci Vesic. (Solid)	Do. (Liverpool)	(or not over 1.)
B.P.C.		90
Ext. Fuci Vesic. (Liquid)	Do. (London)..	35
B.P.C.		
Spongia Ustum	Do. (London)..	18

Tests were also made as to what would be yielded to hot and cold water. Table 2 gives some of the results.

TABLE II.

Specimen	Arsenic Trioxide in parts per million of original dry weed.				
	Cold water extract	Hot water extract	Marc.	Total	Direct estimate
Laminaria digitata	120	—	(5)	—	125
Fucus nodosus ..	40	8	9	57	—
	40	—	16	56	—
Halidrys siliquosa	23	—	(16)	—	39
Chondrus crispus (Arbroath) ..	4	—	(3)	—	7
(Ireland) ..	(4)	—	2	—	6
(Druggists) ..	(8)	—	3	—	11
Gigartina mammosa (Stornoway)	—	7	1	8	6

NOTE.—The figures in italics within brackets are obtained by difference, the others are for the actual assay.

The samples of *Fucus nodosus* examined had a profusion of filaments. The filaments yielded 32 parts per million of arsenic and the thallus 40 parts. Referring to the two extracts of *Fucus vesiculosus*, B.P.C., it would appear that only about 40 per. cent. of the total arsenic is yielded to the dilute spirit. All the assays were performed by the Marsh-Berzelius method. There is a good deal of *secundum artem* in carrying out the test, and analysts usually have their own methods of procedure. In conclusion, the author said the work here reported is essentially preliminary; and is, in no sense, expository of the subject with which it deals. But it does show that seaweeds may generally be expected to contain arsenic, and that some tolerate a comparatively large proportion. In questioning what is the origin of the arsenic, the author said it would be quite unsafe to attempt any answer without further work. It will be noticed how easily the arsenic is extracted by distilled water—in one

experiment 9 parts out of about 60 parts per million were extracted by 15 minutes' contact during one or two repeated rinsings—and the problem arises: Is the yield to distilled water the result solely of altered osmotic conditions, or is it in part due to the plant being dead? But the most interesting consideration of all is the association with the living plant of so much arsenic on the one hand and of so little on the other. *Laminaria* and *Fucus* are in the region of 0.01 per cent. of the dry weight, while others stand at but 0.0005 per cent.; yet one must remember that the concentration would be possibly one-tenth of this in the living weed in the sea. The plants may be examples of a bio-chemical reaction in equilibrium in the living organism. One can imagine that the different varieties of plants vary in their chemical composition, and so vary in their capacity to form organic compounds, or associates, with arsenic; but, such compounds having been formed, a toleration point is reached. The plant lives in a medium in which the reactive body will be in solution, and, consequently, there is the opportunity for biological activity to determine a toleration point exactly analogous to a purely chemical reaction in equilibrium.

Thanks were expressed to Mr. Jacks and Mr. Rutherford-Hill for the Scotch samples; to Mr. Wm. Honeymann, B.Sc., F.I.C., for the Hartlepool specimens; and to Mr. W. R. Eyre for those from Scarborough.

This paper is communicated from the laboratory of Evans, Sons, Lescher & Webb, Ltd., Liverpool.

MR. J. RUTHERFORD HILL, who read the paper in the absence of the author, mentioned that the specimens from Stornoway had been collected by a member of the Conference, Mr. Roderick Smith.

DISCUSSION.

THE PRESIDENT, in inviting discussion, said that Mr. Jones's presentation of his subject seemed to open up a field for thought.

MR. FINNEMORE wondered if similar work had been carried out with land plants. When such plants are used as fodder, does arsenic get into the milk of animals? If used for manurial purposes, do land plants take up arsenic? There was a certain medico-legal importance, too, in the paper.

MR. WALLIS pointed out that percentages were given for the air-dry weed; it seemed desirable that the percentage of moisture should be given. The presence of filaments might be accounted for by another alga growing epiphytically.

MR. ALCOCK humorously inquired whether it mattered if these algae do contain a minute quantity of arsenic. Ladies in America were taking liquor arsenicalis on sugar. (Laughter.) In testing for the presence of arsenic in sulphur, borax, and so forth, one had to see that possibly ten or twelve reagents were all arsenic-free. Agar-agar was being used in making bread. Could not the Conference pronounce an opinion on the question of arsenical contamination, which was being outrageously overdone?

MR. HILL, replying, said it was well known that streams in Cornwall contained arsenic; it was worth considering whether the specimens instanced had not derived their arsenic similarly. In his (the speaker's) evidence given some years ago before the joint committee of the Lords and Commons, he demonstrated that a plant takes up arsenic without, apparently, suffering harm. Was it not possible that arsenic, freely used as a fungicide, might produce poisoning through crops? There was difficulty in getting glass vessels absolutely free from arsenic, but a Scottish glass had been found answering the most stringent requirements. (Laughter and applause.)

After a cordial vote of thanks to the author of the paper, Mr. Naylor took the chair temporarily while the President read a

Note on the Occurrence of Santonin

By PROFESSOR HENRY G. GREENISH and CONSTANCE E. PEARSON.

[ABSTRACT.]

In January, 1921, the authors reported the finding of about 1 per cent. of santonin in the leaves of *Artemisia brevis-*

folia, Wallich*, a plant occurring in abundance from Kashmir to Western Tibet. In August they received from Professor Simonsen, of the Forest Research Institute and College, a second sample collected at Gurez in August, 1920. The material was very similar to that previously received; it consisted apparently of twigs from barren shoots, flowers being very minute and few in number. In this case the leaves were separated from the stems, powdered as far as possible, and treated by the method already described. They contained 1.09 per cent. of santonin calculated upon the leaves dried at 100°, equivalent to 0.76 per cent. calculated upon the air-dry leaves and stems as received. With the crystals of santonin a considerable amount of a buff coloured, pulverulent resin separated. This was removed by washing the crystals with a small quantity of an 8 per cent. solution of sodium carbonate in which santonin is not more soluble than it is in distilled water.† Two other species of *Artemisia* have been reported to contain santonin, viz., *A. mexicana*, Willd., and *A. gallica*, Willd. Among some specimens of Mexican drugs sent from Mexico to the Board of Overseas Trade was a sample of "estafiate" (*Artemisia mexicana*). By the kindness of the Comptroller-General of the Department of Overseas Trade material was obtained from Mexico. This material consisted of two distinct species which were identified as *A. mexicana*, Willd., and *A. redolens*, Willd. The former consisted of stiff, upright stems bearing rather large, dark green leaves but without flowers. This plant occurs in North and South Mexico, and is apparently widely distributed. The leaves of the sample were separated from the stems and crushed thoroughly. Then 25 grams were exhausted with chloroform in a Soxhlet extractor, and the chloroformic solution treated as previously described, but no separation was contained even after seeding the solution with a crystal of santonin and allowing it to stand for several days. In case the chloroform had not sufficiently penetrated the fragments of leaves, 50 grams were exhausted with 97 per cent. alcohol acidified with hydrochloric acid. The alcoholic solution was distilled down to about 10 c.c., and nine times its volume of chloroform added. The filtered solution was evaporated to 10 grams, and the residue treated with barium hydroxide in the usual way. No separation could be obtained, although a parallel experiment with 15 grams of genuine santonin yielded an abundant crop. Neither could any santonin be obtained from 50 grams of the stems. It appears, therefore, that the *A. mexicana* supplied to us did not contain santonin, or at least did not contain it in quantity to be detected by the process adopted. Holmes‡ states that this species is reported to contain santonin, but we have not had an opportunity of seeing the work upon which this statement is based. Arno Viehover and Ruth G. Capen|| have also examined 17 species of *Artemisia* for santonin, among which were *A. mexicana* and *A. neo-mexicana*. Both of these were found to contain santonin, but no details are yet to hand. *A. redolens* also occurs in Mexico, but it is a much more slender plant than *A. mexicana*, and possesses a very strong odour; 20 grams of the powdered drug were treated by the chloroform method, but no separation of santonin took place. *A. gallica* is widely distributed in France, and has been examined by Heckel and Schlagdenhauffen§; it was found to contain a fair quantity of santonin, but the exact proportion is not stated. In the leaves of *A. Abrotanum*, Linn., and of *A. vulgaris*, Linn., no separation of santonin could be observed. This paper was contributed from the Pharmacy Research Laboratory, 17 Bloomsbury Square, London, W.C.

DISCUSSION

Mr. NAYLOR expressed the indebtedness of the audience to Professor Greenish and Miss Pearson for their further investigations of various species of *Artemisia* and for the results embodied in the paper.

Mr. CARR said that the question of finding a source of santonin is most important nationally and commercially. The plants could be grown within the Empire, and there is no reason why the extremely high prices now paid should continue. He would be very glad if Professor Greenish could follow up the question of the santonin content of *Artemisia mexicana* at various periods of the year. He asked drily if, as santonin was not a chemical (as decided in another place), Professor Greenish had found out why it is not a chemical.

Mr. ALCOCK queried the possibility of indigenous plants containing santonin. He would like Professor Greenish to round off his paper with a nice little process as to how he got his 1 per cent. of santonin.

Professor GREENISH, in reply, agreed with Mr. Carr that the time of year the collection was made and the part used is important so that the fact may be determined whether the content does vary. There should be no difficulty in the production of santonin on a commercial scale. No santonin was found in an examination of British specimens. He informed Mr. Alcock that full details of the process were given in the previous paper.

The next paper was:

Note on Acetum Scillæ, B.P.

By J. H. FRANKLIN and G. G. HAMMOND, B.Sc.

[ABSTRACT]

THE investigation undertaken by the authors was carried out with the intention of ascertaining the strength of acetum scillæ, B.P., which various authorities give as about 1 in 4, and is usually considered as such. An average sample of squill was taken and treated exactly as prescribed in the B.P., the quantities used being as follows:

Squill, Bruised	...	...	...	100 oz.
Acetic Acid (33 per cent.)	...	...	...	100 fl. oz.
Water	...	...	...	320 fl. oz.

The squill was macerated with the mixture of acetic acid and water for seven days. At the end of this period the liquor was strained through muslin and the marc pressed. During the period of maceration diffusion takes place, and it was assumed that by the end of the seven days the liquid strained off would be the same strength as that retained in the marc after pressing. In order to ascertain the weight of liquor retained in the pressed marc it was weighed, placed in the drying oven, and dried until the weight was constant. The difference in weight, plus the proportionate weight of total solids, may be reasonably considered to represent the amount of acetum scillæ which had been retained by the marc. The mixed liquors were then filtered, and the amount of liquid absorbed by the filter-paper was determined in a manner similar to the above.

The following are the figures obtained:

Weight of Squill used, 100 oz.	
Weight of liquor obtained after pressing (a)	29 lb.
Weight of Marc before drying	3 lb. 1 oz.
Weight of Marc after drying	1 lb. 10 oz.
Loss in weight	1 lb. 7 oz.
Plus the proportionate weight of total solids	4 oz.
Loss in weight representing Acetum Scillæ	1 lb. 11 oz.
Total product before filtering	30 lb. 11 oz.
Weight of Acetum Scillæ after filtering (a)	28 lb. 11 oz.
Loss due to liquor retained in Marc, including the proportionate weight of total solids	1 lb. 11 oz.
Loss due to filtering, including the proportionate weight of total solids	3½ oz.
Finished Product	30 lb. 9½ oz.

As 30 lb. 9½ oz. corresponds to 489.5 oz. weight and 100 oz. of Squill was used, it follows that the strength of the Acetum Scillæ B.P. should be:—

$$\text{or } \begin{cases} 1 \text{ in } 4.895 \text{ W/W} \\ 1 \text{ in } 4.56 \text{ W/V} \end{cases}$$

* Pharm. Journal, vol. 195, p. 2. † Archiv. der Pharm., 1878, p. 395. ‡ Chemist and Druggist, vol. 94, p. 52. § Amer. Journ. Pharm., vol. 94, 445. § Comptes Rendus, vol. 100, p. 804.

A sample of the product obtained was submitted to the B.P. tests, and gave the following results. The B.P. figures and Squire's are given for comparison:

	Percentage CH ₃ COOH	Total solids	Specific gravity
B.P. ...	6.48 W/V	—	1.070
Squire ...	6.48 W/V	19 per cent. W/V	1.070
Sample ...	6.903 W/V	17.68 per cent. W/V	1.073

With reference to the B.P. preparation, this shows a strength of 1 in 4.2 assuming there is no extractive, but, as squill yields a large amount of extractive, an estimation of the strength of acetum scillæ would indicate 1 in 4.5 W/V rather than 1 in 4 W/V. The above experiments were repeated on several different lots of squill, and the figures obtained so closely approximated to those above that one is bound to conclude the strength of acetum scillæ, B.P., is 1 in 4.5 W/V.

The above experiments were carried out in the laboratories of James Woolley, Sons & Co., Ltd.

DISCUSSION

MR. FORSTER (Seaham Harbour) pointed out differences between manufacture on a large scale and manufacture on a small scale, and suggested that the British Pharmacopœia was "all wrong."

MR. R. R. BENNETT reminded the Conference that the B.P. specification for acidity is a minimum requirement. Squill might be submitted to great pressure: if too great, the product would be bad in appearance and difficult to filter; if too lightly pressed, the product will contain glucosidal principles but less of the mucilaginous bodies.

MR. PECK spoke of the desirability of submitting a sample to a pharmacological laboratory, and of finding out whether the active principle was as soluble in dilute acetic acid as in alcohol.

MR. FRANKLIN, in the course of a general reply on the points raised, said it was obvious that squill needed careful handling. One could not introduce a vacuum apparatus into a British Pharmacopœia process.

MR. FRANKLIN was accorded a very cordial vote of thanks.

The next paper was:

Taking Refractive Indices of Liquids

By ROBERT FOURACRE, Ph.C.

[ABSTRACT.]

IN the following simple method of obtaining the refractive indices of liquids by placing a small quantity between a convex lens and a piece of plane glass or mirror, thus forming a liquid lens, the reading is made by means of a real image, the distance of object being constant. The new principle embodied consists in employing a small electric bulb (as used in pocket torches) for the object, and placing it at the focal distance of a convex lens so that light passing through it is parallel. This beam is then projected through the combination of a convex lens laid on a glass plate with the liquid to be examined between the two (in the usual manner). By moving the combination, the light is then brought to a focus on a plane surface, the correct distance being determined by the sharpness of the filaments. The distance between the surface of the liquid (i.e., the upper surface of the glass plate) and the image will be the focal length. This reading divided into the known focal length of the lens used in the combination, and the result subtracted from 2 will give μ of the liquid. The explanation is the focal length of a lens being the reciprocal of the sum of the reciprocals of distance of object and image, when the object is at the focal distance the image will be at infinity, that is, the rays of light will be parallel. So that light falling on the combination will be parallel, and therefore the distance of the object will be at infinity no matter what distance it may be from the combination of the latter from the image. This distance will be the focal length of the combination, and by subtracting the power of the known lens from the power of the combination, the focal length of liquid lens can be obtained, and from this, μ of liquid lens by means of formula:

$$f = \frac{r}{\mu - 1} \quad \text{Radius (r) of liquid lens being the same as}$$

the surface of the lens with which it is in contact, and if lens of crown glass (μ 1.5) is used then (r) will equal focal length. A lens of 20 cm. length is a convenient one to use for μ from 1 to 1.6.

Thus:—if d =observed distance, x =power of liquid lens (in dioptries), f =focal length of liquid lens, μ =refractive index of liquid lens, and lens of 20 cm. (5 dioptries) being used, r will equal 20.

$$(1) \frac{100}{20} - \frac{100}{d} = x. \quad (2) \frac{100}{x} = f;$$

then from the formula $f = \frac{r}{\mu - 1}$, $f = \frac{20}{\mu - 1}$.

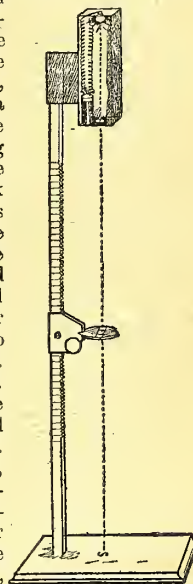
Substituting (2) for f , $\frac{100}{x} = \frac{r}{\mu - 1}$.

Again, substituting (1) for x , the following is obtained.

$$\begin{aligned} \frac{100}{\frac{100}{20} - \frac{100}{d}} &= \frac{r}{\mu - 1} \\ 100(\mu - 1) &= 20\left(\frac{100}{20} - \frac{100}{d}\right) \\ 100\mu - 100 &= 100 - \frac{2,000}{d} \\ 100\mu - 200 &= -\frac{2,000}{d} \\ \mu - 2 &= -\frac{20}{d} \end{aligned}$$

After describing the original experiments, the author said that the apparatus consists of a brass rod, 30 in.

long, fixed to a stand at the bottom and having a rack on one edge starting approximately 20 cm. from the base and going up to 40 cm. At the top of the rod a frame is fitted on, which holds the electric bulb and a pocket battery. To save current the lamp is connected by a piece of spring brass which acts as a switch. On the rod itself, and working on the rack by means of a piston with knob, is the travelling platform having a hole in the centre, on which is laid the glass plate (a microscopic slide) and lens. A piece of white paper is laid on the stand to receive the image for focussing purposes. The electric bulb and two lenses must be in alignment. One side of the rod is marked in cm. from 20 to 60, but should also be divided into m.m. Both lenses used are ordinary plus 5 spectacle lenses. In cases where μ is greater than 1.6, a lens of higher power can be substituted in the combination. All calculations other than corrections for temperature can be eliminated by use of a table or a graph. For example, with a lens of 20 cm., there is a gradual decrease from 0.047 at 20 c.m. to 0.006 at 60 c.m.



Distance in c.m.	Refractive index	Distance	Index
20	1.000	41	1.512
21	1.047	42	1.5238
22	1.09	43	1.534
23	1.13	44	1.5454
24	1.16	45	1.5555
25	1.2	46	1.565
26	1.23	47	1.5745
27	1.26	48	1.583
28	1.285	49	1.5918
29	1.31	50	1.6
30	1.333	51	1.607

The temperature of the liquid can be adjusted by placing the glass plate and lens into water of the temperature required for a few minutes before use. One drop

of the liquid, or at most two, is required for the reading. It is better to start with the platform at the top and gradually lower it. The apparatus can easily be extemporised, and the calculation required is reduced to a minimum.

DISCUSSION

The PRESIDENT said that Mr. Fouracre seemed to have solved the problem of taking refractive indices in a very satisfactory manner. His apparatus was simple and effective.

Mr. NORMAN EVERS asked if, in taking several readings of the same oil, the result would be within one millimetre.

Mr. FINNEMORE said he would like to give Mr. Fouracre some mixtures to test by means of his apparatus—for example, traces of eugenol in iso-eugenol. It is a far cry from this instrument to the latest refractometer, which gives the result practically at once.

Mr. FOURACRE's reply to Mr. Evers was in the affirmative. He agreed to test Mr. Finnemore's mixtures and give him the results. The hospitals, like the ordinary pharmacist (he pointed out), could not afford the high price of the refractometer.

The last paper at this session was :

The Viscosity Test

By CHARLES W. GOSLING, Ph.C.

[ABSTRACT.]

AFTER defining viscosity and how it is measured, the author proceeded to describe the four types of viscometers. In the first type, now obsolete, the time taken by uniform size drops of the liquid and a standard liquid to fall down an inclined plane was compared. The second type is the efflux viscometer, in which comparison is made between the time taken by a similar volume of the liquid and a standard liquid to flow through a small tube or orifice. The Redwood, Saybolt, and Engler viscometers are the best known of this class. The Redwood viscometer, for some years the standard one in this country, was then described in detail. A third type is an instrument in which the resistance offered to the untwisting of a wire by the viscous liquid is measured. The fourth type, represented by the Michell Viscometer, in the author's opinion, will rapidly supersede its predecessors, and, further, it is comparatively new, and is not yet mentioned in the text books.

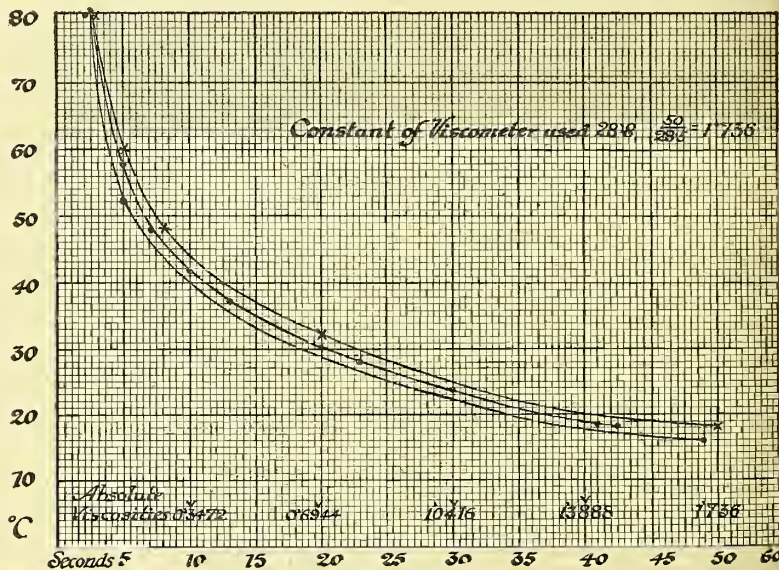
The Michell Viscometer consists of a cup of hard steel, in which are three very hard minute projections. A steel ball fits into the cup, but is prevented from making an exact fit by the projections, which regulate the thickness of the film of liquid between the ball and the cup. Round the cup is a small groove, designed to hold a small excess of liquid, and to act as a protection to the edge of the cup. The handle is hollow to contain a thermometer. The simplest method of use, and the one recommended in the laboratory, is as follows :

A jar about 3 in. high, by 2 in., is three-parts filled with the liquid to be tested, and the viscometer placed in it. One thermometer is placed in the handle, which should be partly filled with oil, and another thermometer is placed in the jar of liquid. The whole should then be heated to about 20° C. above the required temperature, placed in a box, and surrounded with cotton wool. The rate of cooling should be such that the temperatures indicated by the two thermometers should never differ by more than 2° C., and the author seldom experiences a difference of more than 1°. To take a reading, the cup is pressed down firmly on the ball for a few seconds, the pressure released for a second, and then the ball is raised and held about 1 cm. from the bottom of the jar. The time in seconds is noted between the time the instrument was raised and the fall of the ball. The

number of seconds taken by the ball to fall divided by the constant of the instrument gives the true viscosity, at that temperature, in C.G.S. units. The constant is given by the makers with each instrument, and varies with the nature of the liquid for which the instrument is intended. As the temperature of the liquid falls successive readings can be taken, and a temperature viscosity curve made. By dividing the time scale of the curve by the constant of the instrument the absolute viscosity at any temperature can be read off.

The theory of the instrument is explained as follows: As the ball begins to fall, which happens immediately it is lifted, the thin film of liquid between the ball and the cup is stretched, and so tends to contract towards the centre, and to form a vacuum at the top of the cup. Liquid from the grove flows in, prevents a vacuum, and, at the same time, retards the downward movement of the ball. The film of liquid between the cup and the ball all the time is getting thicker, until at least it is no longer able to hold up the ball which falls. The rate of thickening of the film of liquid is proportional to the viscosity of the liquid.

The advantages of the Michell Viscometer over its predecessors are:—The results of different workers are more easily compared. Corrections for acceleration due to gravity, variation due to difference in head, surface tension and density are eliminated. The ease with which the viscosity at different temperatures can be determined. The instrument is not fragile; it is easily cleaned, and gives very concordant results in the hands of a novice. The author suggests that, although the viscosity test has been used chiefly for lubricating oils, it might be applied usefully to a number of substances, in addition to liquid paraffin, in use in pharmacy, for example, in



solutions of gum acacia and tragacanth. The same may be said of gelatine for preparing suppositories. With regard to the viscosity of glue solutions, the Michell instrument gives satisfactory results. The viscosity test for liquid paraffin is likely to appear in the next pharmacopœia.

Mr. Gosling gave a demonstration of the working of the instrument, and, on the suggestion of Mr. C. A. Hill, repeated the experiment. There was no discussion, and with a hearty vote of thanks to Mr. Gosling the session ended.

This is a convenient place for putting on record the excellent arrangements made each day for the Conference luncheon, which was held at the Arboretum Rooms. It was hard to say whether it was more appreciated by the ladies who had been exploring or by the men who had been engrossed in the pursuit of science. At all events, it was a function lingered over and referred to with gratitude in retrospect.

Wednesday Morning, July 26

THE enthusiasm evinced on the previous day was not quite so marked at the final science session, the attendance being sparse. Several minutes after the recognised time of commencement the President called the meeting to attention, and the reading of papers was taken in hand. The first paper was:

The Extraction of Quinine and Strychnine from Solutions of Varying Hydrogen Ion Concentration: A Method for the Separation of Strychnine from Quinine

By NORMAN EVERS, B.Sc., F.I.C.

[ABSTRACT]

THE authors showed that previous workers had chosen in an arbitrary manner the degree of acidity of the solutions with which they worked, so the variation of the amount of alkaloid with the hydrogen ion concentration is not clear. Further that, as the concentration of acid was never less than N/100 the range between this and neutrality was unexplored. Kippenberger (Apoth. Zeit., 12, 459) showed that whereas strychnine was extracted to a considerable extent by chloroform from a 0.15/N hydrochloric acid solution, quinine was extracted only to a very slight extent. Simmer (Archiv. Pharm. 244, 672) showed that strychnine was extracted from hydrochloric acid solutions by chloroform in increasing amount with greater acidity. These results were confirmed by Beal and Lewis (Journ. Amer. Pharm. Assn., 1916, 5, 812).

When sufficient alkali is present to neutralise the acid of the alkaloid salt the extract will consist entirely of the pure alkaloid. If not, the extract will consist of free alkaloid varying according to the degree of acidity. Further, if the salt is soluble in the solvent, the extract will consist of a mixture of free alkaloid and alkaloidal salt, the former decreasing with greater acidity. In a solution of the pure salt an amount of free alkaloid will be extracted, depending on the degree of hydrolysis of the salt in solution.

In solutions of greater acidity than that of the salt of the alkaloid the amount of free alkaloid will decrease with the increase of acidity, but if the salt is soluble in the solvent the amount dissolved should increase up to a certain limit. It was hoped that a study of these points might reveal certain differences in the behaviour of different alkaloids which would be useful in their separation one from another. The first two alkaloids studied were quinine and strychnine. Strychnine hydrochloride 0.5 gram was dissolved in 50 c.c. water and adjusted to the required hydrogen ion concentration by the addition of N/10 hydrochloric acid or N/10 sodium hydroxide until the solution was at the desired PH as shown by the colour given with an indicator. The solution was then extracted four times (shaking for one minute each time) with neutral chloroform using 25, 25, 15, and 15 c.c. It was, of course, found that the solution was rendered more acid by each shaking with chloroform, on account of the removal of the alkaline strychnine, and thus the PH in every case diminished after extraction. It was therefore evident that, to obtain comparative results, the addition of a "buffer" salt which prevents change of PH was essential; 1 gram sodium bicarbonate was added. A further series of experiments was carried out with this modification. The amount of strychnine hydrochloride was determined in the residue by extracting with very dilute nitric acid, adding 20 c.c. N/10 silver nitrate solution and titrating back with N/10 ammonium thiocyanate solution in the usual way. The results are shown in the table on next column.

The author concluded from these results (1) to ensure complete extraction as alkaloid the PH must not fall below 7—i.e., the solution must be on the alkaline side of true neutrality; and (2) that strychnine hydrochloride is dissolved by chloroform from acid solution to a considerable extent, the amount extracted rising with increasing acidity, and depending on amount of chloroform used and time of shaking. The possibility of

PH.	Strychnine extracted as hydrochloride	Strychnine extracted as alkaloid	Total strychnine extracted
	Per cent.	Per cent.	Per cent.
1.	33.4	9.1	42.5
2.	29.2	12.2	41.4
3.	22.9	12.2	34.1
4.	22.9	15.2	38.1
5.	15.0	28.4	43.4
6.	11.9	67.8	79.7
7.	nil	100.0	100.0
8.	nil	100.0	100.0
9.	nil	100.0	100.0
10.	nil	100.0	100.0

extracting strychnine hydrochloride completely from aqueous solution by chloroform in a reasonable number of extractions such as could be used in an analytical process was then considered. After various trials it was found that 0.5 gram strychnine hydrochloride could be completely extracted from 50 c.c. of solution in 2/N hydrochloric acid in five extractions, using 50 c.c. chloroform each time.

Quinine hydrochloride (0.5 gram) was treated in an exactly similar manner, with the following results:

PH.	Quinine extracted as hydrochloride	Quinine extracted as alkaloid	Total quinine extracted
	Per cent.	Per cent.	Per cent.
1.	0.5	nil	0.5
2.	0.7	nil	0.7
3.	1.6	0.7	2.3
4.	37.5	3.1	40.6
5.	75.0	5.0	80.0
6.	65.2	34.2	99.4
7.	7.4	92.5	99.9
8.	nil	100.0	100.0
9.	nil	100.0	100.0

Thus the PH must not be less than 8 in order that quinine hydrochloride may not be extracted, (2) from PH=7 to 6 the whole of the quinine is extracted, partly as hydrochloride and partly as alkaloid. At greater acidity than PH=4 there is a sudden reduction in the amount of quinine hydrochloride dissolved. This corresponds with the formation of the acid hydrochloride. As the acidity increases there is a gradual reduction in the amount of quinine extracted until at PH=1—i.e., in N/10 hydrochloric acid—the amount dissolved is almost negligible. This is in striking contrast to the behaviour of strychnine under similar conditions. Quinine hydrochloride (0.5 gram) was therefore dissolved in 50 c.c. 2N hydrochloric acid and extracted with chloroform under identical conditions as gave complete extraction with strychnine hydrochloride. A residue weighing only 0.005 gram was obtained.

This evident basis for a method of separation of strychnine from quinine was tested. Mixtures of varying proportions of quinine and strychnine hydrochlorides were taken and treated by the following method:

The alkaloids are dissolved in 50 c.c. 2/N hydrochloric acid, and the solution is shaken with five successive quantities of 50 c.c. each of chloroform, shaking thoroughly for five minutes in each case. The chloroform is then distilled off from the mixed chloroform solutions until about 50 c.c. remain. The latter is poured into a separator (the flask being washed with a little chloroform) and shaken with 20 c.c. water containing 3 c.c. dilute ammonia solution. The chloroform is run off into a tared flask and the aqueous solution extracted with 15 and 10 c.c. chloroform. After evaporating off the chloroform, adding a few drops of alcohol to prevent decrepitation, the residue is dried at 110°, washed three times in the flask with 1 c.c. ether, again dried and weighed. The residue consists of almost pure strychnine containing only a negligible amount of quinine.

The following results with mixtures of quinine and strychnine hydrochlorides show that the method is satisfactory:

MIXTURES OF QUININE AND STRYCHNINE

			Strychnine	
			Taken	Found
A.	Quinine hydrochloride ..	0.4 gm.	0.084	0.083
	Strychnine hydrochloride ..	0.1 gm.		
B.	Quinine hydrochloride ..	0.75 gm.	0.042	0.042
	Strychnine hydrochloride ..	0.05 gm.		
C.	Quinine hydrochloride ..	1.20 gm.	0.042	0.040
	Strychnine hydrochloride ..	0.05 gm.		

In extraction C the quinine and strychnine are approximately in the proportions present in Easton's Syrup. The method was then tried on the total alkaloids obtained in the usual way from Easton's Syrup and from iron, quinine, and strychnine citrate:

		Strychnine	
		Taken	Found
D.	Easton's Syrup ..	.057 per cent.	.054 per cent.
E.	Iron, quinine and strychnine cit.	1.0 per cent.	0.96 per cent.

To test whether strychnine might be extracted without previous separation of the total alkaloids, the following procedures were adopted:

Easton's syrup.—50 c.c. was mixed with 50 c.c. 4/N hydrochloric acid, and the mixture shaken out five times with 50 c.c. chloroform, shaking for five minutes at each extraction. After distilling off the chloroform from the mixed extracts until about 50 c.c. remained the latter was poured into a separator (the flask being washed with a little chloroform) and shaken with 20 c.c. water and 3 c.c. dilute ammonia. The aqueous solution is shaken with two further quantities of 15 c.c. chloroform, and the mixed chloroform extracts evaporated to dryness, adding a little amyl alcohol at the end of the evaporation to prevent decrepitation. After drying at 110° the residue is washed three times in the flask with 1 c.c. of ether, dried and weighed. Two samples of Easton's Syrup prepared in the laboratory gave .054 and .052 per cent. strychnine.

Iron, quinine, and strychnine citrate.—5 gms. are dissolved in 50 c.c. 2/N hydrochloric acid and treated as for Easton's Syrup. Strychnine found, 0.96 per cent., as compared with 1 per cent. taken. There is no tendency to emulsification in these acid liquids. The results are somewhat low, but are sufficiently accurate for ordinary purposes, and probably as accurate as any other method. The direct application of the method to Easton's syrup, etc., without previous extraction of the alkaloids results in a considerable decrease in the time required for a determination as compared with other methods. The work was carried out in the laboratories of Allen & Hanburys, Ltd.

DISCUSSION

The PRESIDENT, in opening the discussion, remarked that the quantitative separation of strychnine from quinine was always a troublesome problem.

Mr. NAYLOR inquired whether the presence of strychnine in any other form than the hydrochloride would affect the accuracy of the process, and whether an excess of alkali would also affect the final result.

Mr. CARR congratulated the author on the practical bearing of his paper, and added a general warning to the members that in extracting a hydrochloride from a neutral solution one had to be very careful to separate exactly, so as not to take away any of the aqueous portion with the chloroform.

Mr. FARR suggested that the paper probably explains to a considerable extent variations in other processes.

Mr. GAMBLE, in congratulating the author, remarked that the paper should be read not only in regard to the particular alkaloids studied. Research pertaining to hydrogen-ion concentration had been described as glibberish—(laughter)—but its possibilities had hardly yet been exploited. (Applause.)

Mr. FINNEMORE desired a clear definition of a buffer salt.

Mr. WALLIS asked how the time of shaking was determined.

Mr. EVERS, replying to the points raised, said that he had not worked with other salts of strychnine, because the hydrochloride was the only salt soluble in chloroform. He had not tried the effect with a strong excess of alkali. The time of shaking selected was

quite arbitrary, but one minute was not enough. The time required to get an equilibrium was longer with a hydrochloride than with the alkaloid itself. A buffer salt was a salt which prevents change of hydrogen-ion concentration on the addition of acid or alkali—e.g., a carbonate or a phosphate. Separation must, of course, be carefully done.

A very cordial vote of thanks was passed to Mr. Evers for his paper.

The next paper, read by Mr. Evers in the absence of the author, was:

A Ferrocyanide Coloration of Tinct. Chlorof. et Morph., B.P. '85.

By CHARLES M. CAINES, F.I.C.

[ABSTRACT.]

THIS year the author's attention was drawn to a B.P. 1885 tincture, which, on dilution with water and acidification with diluted hydrochloric acid had given a green precipitate. It was suggested that the compound tincture of the B.P. '14 had been supplied instead of the 1885 tincture. In view of the great difference in the morphine content between the tinctures it was obviously a matter of some importance to establish the identity of the 1885 preparation. The green-coloured precipitate of the compound tincture of the B.P. 1914, on shaking with ether, was dissolved, but the green colour of the B.P. 1885 preparation remained completely insoluble. The cause of the peculiar green coloration, however, was not so clear. Eleven samples of B.P. 1885 tinctures were procured from representative houses and the results compared. The results of their examination at the time, and at various intervals since, were recorded. The No. 11 sample was a B.P. 1885 tincture specially prepared in the laboratory. Although when first made it gave no green-coloured precipitate, when examined some two months later a green coloration had developed. Three of the commercial tinctures had also developed the green coloration. The character and general behaviour of this precipitate suggested the production of a ferrocyanide from the hydrocyanic acid of the tincture as a possible explanation of the phenomenon. The treacle used in the preparation of the tincture was found to contain 3.42 per cent. of ash and 0.03 per cent. of iron. A number of experiments were made with solutions containing definite quantities of iron salt (ferrous and ferric), with the corresponding amount of hydrocyanic acid, both with and without the morphine hydrochloride, syrup and other ingredients, and it was found that the solution most nearly approaching the reaction in question was one containing a mixture of ferrous and ferric salts, and hydrocyanic acid alone, or plus the corresponding quantity of morphine. The formation of ferrocyanide in an alkaline solution of hydrocyanic acid in the presence of a mixture of ferrous and ferric salts is a well-known occurrence. But its production in a faintly acid solution is more novel. In contradistinction to that occurring in alkaline solution, which results immediately, it takes some little time before the coloration is developed. It is recommended that in the preparation of the B.P. '85 tincture a treacle free from iron salts should be employed. Thanks were expressed to Allen & Hanburys, Ltd., in whose laboratories the above experiments were carried out.

DISCUSSION

The PRESIDENT, in inviting remarks, said that this was a practical paper, calling attention to one of those phenomena constantly occurring to perplex the pharmacist. It was surprising that more of such phenomena had not been observed.

Mr. DEANE mentioned that treacle was defined in the British Pharmacopoeia, 1885, as being of a golden-yellow colour. This would point to the use of golden syrup, but apparently a darker treacle was generally used.

Dr. SYMES confirmed the impression that treacle was commonly used.

Mr. NAYLOR asked whether golden syrup was free from iron, or contained a much smaller percentage than darker varieties of treacle. He wondered whether it would be easy to obtain treacle free from iron.

Mr. GAMBLE remarked that the complaint giving rise to this paper had come in the ordinary way of business. It

was due to the persistence of Mr. Caine that the cause was found out. Matters of this kind were very informing to other workers, and made good Conference papers.

Mr. EVERS, while disclaiming any authority to reply on behalf of the author, said that he (the speaker) had not found a sample of treacle free from iron. It was interesting to note that, contrary to the guidance of the text-books, this reaction had taken place in a faintly acid solution.

The PRESIDENT, in expressing the thanks of the meeting to the author, emphasised the desirability of probing points like these. In illustration, he referred to a case in which, years ago, he boiled a sample of ipecacuanha wine in order to get rid of some supposed yeast cells. The wine kept perfectly afterwards, but no yeast cells were found. What had happened was that the enzymes had been sterilised.

The next paper, also read by Mr. Evers on behalf of the author, was :—

Note on Cherry Laurel Water

By CHARLES M. CAINES, F.I.C.

THE fresh leaves of *Prunus Laurocerasus*, L., contain a cyanogenetic glucoside, laurocerasin, now more generally known as prulaurasin, which is decomposed in contact with the enzyme, prunase, and water yielding benzaldehyde, hydrocyanic acid, and dextrose. The distillate contains hydrocyanic acid, benzaldehyde, benzoic acid, and water. On keeping, an equilibrium is more or less established with the enzyme, prunase, and water, yielding benzaldehyde, and the liquid then contains hydrogen cyanide and benzaldehyde cyanohydrin. The water is used as an adjunct to eye lotions (1 or 2 in 16), and it is frequently found that the resultant lotion possesses a distinctly irritant action on the conjunctiva. In the ordinary course of dispensing the following prescription was presented :—

Sodii bivorat. 3j.
Aqua. laurocerasi 3j.
Aqua. rosæ ad. 3viij.

The lotion, prepared strictly in accordance with this prescription, caused severe smarting of the eyes, which seriously alarmed the patient.

A second lotion was prepared in the laboratory, using aqua laurocerasi from stock, and the irritating action on the conjunctiva was confirmed. In order to establish whether this action was peculiar to this particular stock of the water, or was common to others, samples were procured from several well-known houses, and the conjunctival reaction of the resultant lotions was compared with that of the original. At the same time the results of the analytical investigation of the samples were recorded. This investigation included determination of the reaction (PH) of the samples, percentage of hydrocyanic acid, percentage of benzaldehyde as determined from the weight of the residue left after extracting 100 C.c. of the sample with ether, evaporating the ether at a low temperature and drying the residue in the desiccator over sulphuric acid. The acidity of this residue was determined by solution in neutral alcohol (90 per cent.) and titration with N/20 volumetric potassium hydroxide solution, using phenolphthalein solution as an indicator, the results being expressed in terms of benzoic acid. The results are tabulated below :—

C	Colour and appearance	Odour	PH.	per cent. HCN	Ether residue	Acidity as benzoic acid	Action on conjunctiva.
1.	Colourless (clear)	HCN and benz. aldehyde	5.0	0.088	0.551	0.067	Irritating
2.	Pale yellow (clear)	"	4.0	0.096	0.338	0.064	"
3.	Brownish-yellow (clear)	"	4.0	0.066	0.198	0.050	"
4.	Brown (clear) ..	"	4.5	0.084	0.440	0.102	"
5.	Colourless (clear)	"	8.0	0.107	0.054	0.006	Not,,

A comparison of the above results shows that sample No. 5 was the only sample which yielded a non-irritating

lotion. This sample, although agreeing with the pharmacopœial requirements as regards hydrocyanic acid, contained only about $\frac{1}{4}$ the quantity of benzaldehyde, and less than 1/10 the percentage of benzoic acid, present in the majority of the other samples. The percentage of hydrocyanic acid had been adjusted to the pharmacopœial requirements, and ordinary tap-water had been used in the adjustment, as the sample contained some quantity of calcium and yielded well-marked reaction for chlorides. Of the remaining samples, Nos. 1, 3, and 4 contained merely traces of calcium salts and chlorides, whilst No. 2 gave well-marked reaction for chlorides, but contained only a trace of calcium salts. Little reliance can be placed on a recent test which claims to distinguish between an artificial mixture of benzaldehyde, hydrocyanic acid, and water, and a genuine water by means of the reaction towards Congo red. It is clearly an indication of the acidity of the sample, and a far better indication is afforded by the PH determination.

Both benzaldehyde and benzoic acid in the quantities enumerated in the table (with the exception of sample No. 5, where the percentage of benzoic acid is abnormally low) proved intensely irritating to the eyes. In view of the variation in the composition of the water, and the uncertainty of its action, it is recommended that the use of this water as an adjunct to lotions for the eyes should be discontinued, and that it might with advantage be deleted from the next edition of the British Pharmacopœia. Thanks are expressed to Allen and Hanburys, Ltd., in whose laboratories the above investigation was conducted.

DISCUSSION.

The PRESIDENT said that this was another example of a useful paper arising from observations often made in the pharmacy. If cherry laurel water were to be deleted from the Pharmacopœia, cherry laurel leaves would go, and we might eventually have a Pharmacopœia without vegetable drugs—a distinct misfortune from his own point of view. (Laughter.)

Mr. HAMPSHIRE inquired whether age made a difference to the acidity of the preparation. His experience was that it was of very little use in eye lotions.

Mr. DEANE remarked that, so long as cherry laurel water was prescribed, so long must it be kept in the B.P. Other substances were undoubtedly present, judging by the odour; had their nature been investigated? Doctors were aware that the water had an irritant action.

Mr. GERRARD believed that the water was absolutely useless as a therapeutic agent. It was sometimes necessary to paint a little picture in prescriptions. (Laughter.) The product was apt to be kept a long time; it was very rarely used in hospital pharmacy.

Mr. FINNEMORE suggested that even if cherry laurel water was deleted from the Pharmacopœia it would still be in demand. Some of the older samples were coloured owing to the formation of mandelonitrile. The preparation was more used in skin lotions than in eye lotions. He would be very chary in accepting the percentage of benzaldehyde obtained by the method outlined, as there would be some loss by evaporation.

Dr. SYMES said that, in his experience, the water was frequently prescribed with zinc oxide and calamine, and was given internally in cough-mixtures. The time had not yet come to delete it from the British Pharmacopœia.

Mr. J. R. HILL urged that, while medical men could prescribe, pharmacists could give them very practical suggestions. He himself had had no experience of the use of the product in eye lotions. In his judgment, it was superfluous and ought to be deleted.

Mr. E. H. SIMMONS commended the paper as one of the most valuable the Conference had had. It would help retail pharmacists to explain such matters to doctors, who were apt to blame the chemist for any variation in a prescription. He (the speaker) had had a case of rash arising from the use of linimentum belladonnæ, and the medical men had suggested that something was wrong with the liniment. Cherry laurel water was more used internally than externally.

Mr. CARR observed that there was a tendency, as we

passed from one pharmacopœia to another, towards greater refinement, and it would be strange if we did not sometimes get preparations differing in their effect. The elaboration of a process altered the character of the product. Ergot was a case in point; a fresh infusion might be very active, while a B.P. preparation was almost valueless. Making products for keeping entailed a departure from methods of making fresh preparations, and a vacuum pan was necessary to bridge the gulf between the types of process. To concentrate an ergot preparation at 45° spoiled, and condensation above 30° changed its character. The history of the use of ipecac. sine emetin. was another case in point.

Mr. HOBBS (Tunbridge Wells) said that in the South cherry-laurel water was frequently prescribed in eye-lotions. The paper was a warning to pharmacists to examine their supplies.

Mr. GAMBLE explained that the complaint, which was the occasion of this paper, arose in connection with a genuine B.P. water. It was frequently used in eye-lotions, but 5j. in 3vij. was an excessive strength. No time of collecting the leaves was mentioned in the B.P. It must be assumed that the rising generation of students would be guided very much by what was in the B.P. The paper showed that a preparation may be unjustly blamed.

Mr. FARR was of opinion that the benzaldehyde figures raised a doubt whether some samples contained an undue proportion of hydrocyanic acid. In spring a rather better product was obtainable, but the young leaves were less characteristic than the older ones. Where did the colour come from?

Mr. EVERS, in the absence of the author, commented briefly on one or two of the questions raised. The figures showed, he pointed out, that older samples are not more irritant than recent ones. If the water is to be retained in the B.P., there should be some standard for benzaldehyde as well as for hydrocyanic acid.

The PRESIDENT, in expressing the thanks of the meeting, suggested that it was a rational proceeding to instruct medical men that cherry-laurel water was not suitable for eye-lotions. There was more to be investigated on the subject of the paper. Very young leaves were richer in prulaurasin than older leaves. There was a difficulty in specifying leaves of a particular age. The water was used in France, but less in Germany and Austria, when a water from bitter almonds took its place. Bitter almonds were free from influence of the time of the year. It was encouraging to find the paper producing so interesting and valuable a discussion.

Mr. H. HUMPHREYS JONES, apologising for his late intervention in the discussion, suggested that the irritating effect noted might be due to the formation of a little formic acid.

The next paper, an abstract of which was read by Mr. C. H. HAMPSHIRE, was:—

Rapid Estimation of Quinine Salts in Tablets

By MESSRS. S. G. LIVERSIDGE, F.I.C., AND
F. W. ANDREWS.

[ABSTRACT.]

THE authors sought a rapid and accurate method of quinine assay, and claim to have obtained in the ether and titration method one which is quick, suitable to works' requirements, and, when carefully applied, useful in research investigations. Quinine (unlike most other alkaloids) influences the sharpness of the "end-points" in the case of all indicators. But after much work in search of the "perfect indicator," it was decided to remove the quinine as far as possible, and under certain conditions the "end-point" could be determined to within 0.05 c.c. of N/5 acid or N/5 alkali. It was necessary to obtain a ready solvent for quinine which was insoluble in water and gave a clear and complete separation in a short period, and after various solvents were tried Howards' 0.730 ether, previously saturated with pure water, was decided upon. By preserving a definite ratio of ether to water, and water to ether, accurate results were obtained. In dissolving the tablets complete solution of the quinine salts is obtained by heating up to boiling with exactly

20 c.c. N/5 sulphuric acid; the acid solution method is used in all cases. The principle, briefly, is combination of total mineral acid with N/2 sodium hydroxide, removal of the liberated alkaloids with washed ether, and subsequent titration of the excess alkali with N/5 sulphuric acid, using phenolphthalein as indicator in the usual manner.

Excipient and sugar coating have no reaction. When boric acid is present this method can still be used successfully, but the indicator must not be affected by boric acid. The indicator adopted was an alcoholic solution of hæmatoxylin (0.5 gm. in 100 c.c.). The N/5 acid is run in until a decided yellow colour is produced. The degree of normality of acid and alkali must, of course, be previously determined, using hæmatoxylin as indicator. Phenolphthalein is preferred for mineral acid salts, but methyl red (*p*-dimethylaminoazobenzene *o*-carboxylic acid) may be used by taking a burette reading when a distinct pink, lasting at least two minutes, is produced. The importance of checking the accuracy of standard solutions used with these particular indicators is emphasised. The E.T. (ether and titration) method, which was finally adopted for tablets, is as follows: Take sufficient tablets, approximately 5 gr. of a quinine salt, dissolve completely in 20 c.c. N/5 sulphuric acid in a small beaker, boiling if necessary thoroughly to disintegrate, and using a small glass rod to assist in extraction. The solution is then cooled to normal temperature, and, if necessary, made up to original volume. Transfer the liquid to a glass separator and wash out small beaker with 15 c.c. distilled water. Carefully add 20.0 c.c. N/2 sodium hydroxide, followed by 40 c.c. washed 0.730 ether; shake vigorously and allow to stand at least 15 minutes. At the end of this period withdraw the lower layer carefully into an Erlenmeyer flask, wash the ethereal layer with 20 c.c. water, and, after thoroughly shaking, allow to stand five minutes, and add the lower layer to the bulk in the flask. Add about 0.5 c.c. phenolphthalein solution and titrate with N/5 sulphuric acid. The following was given as an example: A 5 gr. tablet of quinin. hydrochlor. was taken. The amount of sodium hydroxide added was 50.3 c.c. N/5 solution. The total acid equalled 43.1, thus showing a difference of 7.2 c.c. Then, taking 1 c.c. N/5 alkali = 0.0073 gm. hydrochloric acid, and taking the conversion factor of hydrochloric acid in quinin. hydrochlor. as 6.18 (a table of conversion factors is given at the end of the paper), the following calculation results:—

$$7.2 \times 0.0073 \times 15.43 \times 6.18 = 5.01 \text{ grains.}$$

Therefore the tablet contained 100.6 per cent. of required amount of salt. All tablets containing quinine in combination with a mineral acid may be assayed in the above manner, using equivalents for the excess N/5 alkali. Proceeding, the authors described a modification of the E.T. method in the presence of calcium carbonate. In this case, titration with a sufficiency of N/5 sulphuric acid to neutralise the calcium carbonate, with methyl orange as indicator, is proceeded with and the amount noted. The process already described is then followed, the amount of acid used in the calcium carbonate elimination being subtracted from the total. Thus:

A quinine sulphate tablet stated to contain 0.5 gm. quin. sulph. was taken and moistened with a few c.c. boiling water; then ground in an agate mortar. It was then transferred with 15 c.c. cold water to a porcelain basin, 2 drops of methyl orange indicator added, and titrated carefully with N/5 H₂SO₄, constantly stirring, until just neutralised. Amount of N/5 H₂SO₄ required = 10.5 c.c.; continued the addition of N/5 acid up to 20.0 c.c. Heated in usual way to effect complete solution of the quinine salt. Amount of N/5 acid further required = 34.6 c.c. Total amount of N/5 acid used = 54.6 c.c. Of this, 10.5 c.c. was used up by the calcium carbonate, thus leaving = 44.1 c.c. Since 20.0 c.c. N/2 sodium hydroxide is neutralised by 49.6 c.c. of the acid used, 49.6 - 44.1 = 5.5 c.c., equivalent to acid radicle. Conversion factor = 8.99; and 1 c.c. N/5 NaOH = 0.0098 gm. H₂SO₄. To convert the alkali used into the amount of quinine sulphate: 5.5 × 0.0098 × 8.99 = 4.846 gm. quinine sulphate, which represents 96.92 per cent. of the amount said to be present.

Applied to the pure salts of quinine the percentage of error ranged from 0.05 in the case of the arsenate to 0.6 in the case of the bihydrochloride. The water content of any of the salts could be determined in 45 minutes within 1 per cent. of the truth. As an example: 0.5 gm. undried quinine hydrobromide

was treated in the usual way. The calculated amount from titration figure 6.0 c.c. was 0.5075 gm. salt. The water content was determined by oven at 100° C. and found = 3.2 per cent. The theoretical percentage of water was $4.2 = 0.5050$ gm. The E.T. method was applied to quinine arsenate, but the figure obtained did not agree with the B.P. Codex formula of $C_{20}H_{24}N_2O_2 \cdot AsH_3O_2 \cdot H_2O$. Accordingly, gravimetric analysis was undertaken and showed the true formula was $(C_{20}H_{24}N_2O_2) \cdot 2AsH_3O_4 \cdot 8H_2O$. The value of the method was also shown as regards quinine phosphate, but the method was slightly modified for phosphoric acid determination.

After removal of the alkaline layer from the ether-layer, the liquid in a flask was saturated with pure sodium chloride and boiled after removal of the ether on a steam-bath. Phenolphthalein indicator was then added and titration conducted in the usual manner. The success of this method has been proved similarly in the case of quinine iodide, of which the formula has been found to be $(C_{20}H_{24}N_2O_2) \cdot HI \cdot H_2O$, and organic salts of quinine were found to vary considerably in composition. In order to prove the accuracy of the method adopted it was necessary to determine gravimetrically the exact composition of the salt used. The quinine cinnamate used was found to contain an amount of cinnamic acid in excess of that required by the usual formula, $C_{20}H_{24}N_2O_2 \cdot C_6H_5CHCHCOOH$. Cinnamic acid appears to be extracted from this salt only with difficulty by means of ether, and it was found that repeated extractions with fresh ether yielded a figure approaching more nearly to that obtained by titration. The quinine formate used contained 6.8 per cent. of water, for which allowance was made in the calculation. Hydroquinine sulphate tablets estimated to contain 96.5 per cent. by gravimetric analysis gave 95.5 per cent. by the E.T. method. Tablets of quinidine sulphate stated to contain 5 gr. were shown to contain 97.5 per cent. of this amount, assuming that the salt was present with 2 molecules of water. Five gr. tablets of cinchonidine sulphate were shown to contain 0.5023 by a modified E.T. method which consists in adding the requisite amount of washed ether before the addition of 20.0 c.c. N/2 sodium hydroxide, as the ether did not completely dissolve the alkaloid after it had been thrown out by alkali.

QUININE SALTS.

All formulas quoted below are obtained from Thorpe's Dictionary of Chemistry, Vol. II.

Name.	Formula.	1 C.c. N/5 Alkali Com- bined with Quinine.	Con- version Factor
Sulphate ..	$(B = C_{20}H_{24}N_2O_2)$		
Bisulphate ..	$B_2H_2SO_4 \cdot 7H_2O$	= 0.0098 Gm. H_2SO_4	× 8.99
Hydrochloride ..	$B_1H_2SO_4 \cdot 7H_2O$	= 0.0098 "	× 5.59
Bihydrochloride ..	$B_1HCl \cdot 2H_2O$	= 0.0073 "	× 10.86
Hydrobromide ..	$B_1HBr \cdot H_2O$	= 0.0073 "	× 5.44
Bihydrobromide ..	$B_1 \cdot 2HBr \cdot 3H_2O$	= 0.00162 "	× 5.22
Iodide ..	$B_1 \cdot HI$	= 0.00162 "	× 3.53
Phosphate ..	$B_2(H_3PO_4) \cdot 8H_2O$	= 0.0256 "	× 9.08
Arsenate ..	$B_2H_3AsO_4 \cdot 8H_2O$	= 0.0142 "	× 6.58
Formate ..	$B_1H \cdot COOH \cdot H_2O$	= 0.0092 "	× 8.43
Lactate ..	$B_1(C_3H_5O_3)$	= 0.0180 "	× 4.6
Cinnamate ..	$B_1(C_9H_8O_2)$	= 0.0296 "	× 3.9
Salicylate ..	$B_1(C_7H_6O_3)$	= 0.0276 "	× 3.34
Citrate ..	$B_3(C_6H_8O_7)_2$	= 0.0128 "	× 3.32

OTHER SALTS.

Hydroquinine Sulphate $(C_{20}H_{26}M_2O_2) \cdot H_2SO_4 \cdot 7H_2O$	$\frac{0.0098 \text{ gm. } H_2SO_4}{0.0098 \text{ gm. } H_2SO_4}$	× 9.03
Quinidine Sulphate $(C_{20}H_{24}N_2O_2) \cdot H_2SO_4 \cdot 2H_2O$	$\frac{0.0098 \text{ gm. } H_2SO_4}{0.0098 \text{ gm. } H_2SO_4}$	× 7.98
Cinchonidine Sulphate $(C_{19}H_{23}N_2O_2) \cdot H_2SO_4 \cdot 2H_2O$ or anhydrous	$\frac{0.0098 \text{ gm. } H_2SO_4}{0.0098 \text{ gm. } H_2SO_4}$	× 7.36 or 7.00 (Anhydrous)

The authors' thanks to Howards & Sons, Ltd., Ilford, were expressed for permission to publish these results, and to Mr. Bernard F. Howard for his helpful criticisms.

DISCUSSION.

The PRESIDENT, in inviting discussion, pointed out that the authors of the paper had carried through a very large number of experiments.

MR. EVERS remarked that the disadvantage of the method appeared to be that one was estimating the acid, not the alkaloid, and depended on whether the amount of acid present in the salt was exactly right. He could confirm the authors' experience as to drying quinine: it did not become anhydrous unless dried at 100° for a long time,

and 115° or 120° was a preferable temperature. Direct titration of quinine was unsatisfactory unless it was titrated to a definite colour—a definite Pfr. Some of the authors' results were extremely accurate, and their method was quite a valuable one.

MR. D. LLOYD HOWARD explained that the personal equation was very marked in quinine estimations. Workers would get results entirely consistent with their own and inconsistent with those of other workers.

On the motion of the PRESIDENT, the authors were cordially thanked.

The last paper, in the absence of the author, was taken as read. It was entitled:—

The Analysis of Milk Foods

By R. H. CRICHTON, M.P.S.

[ABSTRACT.]

THE object of milk foods is to add protein to other foods in such a way that the patient will not know of addition. Because of the ease of its preparation, its tastelessness and its ready miscibility with water, casein or milk-protein has been adopted. Casein is prepared by acidifying skimmed milk, collecting the curd, washing and drying. If unskimmed milk is used, or if the cream has been imperfectly removed, some fat is occluded in the clot. Lactose may not be perfectly removed, but some of the preparations show that milk-sugar has been added. Lactose imparts taste to the product, but diminishes the value of the preparation for its particular purpose. The objection to fat is that the preparation is liable to become rancid. The foods all contain either calcium or sodium glycerophosphate or both to the extent of about 5 per cent. No attempt has been made to estimate the glycerophosphate content. A simple routine method of analysis was required, and this was sought in a method of analysis carried out as follows:—

A fat-free coil is placed in a dry weighing-bottle and weighed. Then 5 c.c. milk is dropped on the coil, care being taken that the liquid is totally absorbed. The weight is again taken, and from the difference in weight divided by the volume the specific gravity is obtained. The coil, still in the bottle, is carefully dried in a steam-oven until it ceases to lose weight. The weight is recorded and the difference gives the amount of total solids present. The coil is then exhausted in a Soxhlet apparatus, dried and again weighed. The difference between this weight and the preceding one gives the amount of fat present; the difference in weight between the amount of fat present and the total solids gives the amount of other solids. To obtain the protein and carbohydrate content, 10 c.c. of the milk is placed in a 200-c.c. stoppered flask, diluted with water to about 100 c.c. and colloidal iron (liq. ferri dialysat.) added drop by drop until the supernatant liquor is free from turbidity. The mixture is shaken vigorously and allowed to stand for a quarter of an hour and then diluted to 200 c.c. with water. The precipitate is filtered off and the nitrogen estimated by Kjeldahl's process. This nitrogen content multiplied by 6.38 equals the protein content in 10 c.c. milk, i.e., in 10 x sp. gr. gms. milk. The filtrate contains the lactose, which may be estimated by either Pavy's or Benedict's solution. The above operations are capable of being rapidly completed, and a worker can complete several analyses in a day. The fat-soaked coil becomes somewhat darker in colour on drying, due to slight oxidation.

Some of the marketed foods were examined by the process: In the first sample about 5 Gms. of the food was mixed with water and diluted to 200 C.c. after sufficient colloidal iron had been added. The solution was then submitted to exactly the same analysis as the milk described above, except that the estimation of the fat was carried out by the exhaustion of the dry powder. The process outlined was found to be very suitable. In No. 2 the colloidal iron did not successfully precipitate the protein, so, to estimate the carbohydrate, the protein was precipitated by alcohol. In the examination of the 3rd specimen the iron precipitation method was suitable, the protein being completely precipitated and the filtrate clear and bright. Sugar, starch, and fat were found to be absent in this case. The method of milk analysis outlined above may be adopted to the analysis of these foods in so far as their components, if other than a mineral nature, are concerned, provided they are derived from milk. In the sample examined, which failed with the

method, the presence of starch and cellulose prevents the precipitation of the casein by colloidal iron. The investigation has been carried out whilst undergoing a course of study for the Major Examination, and this fact accounts for the small number of foods examined. The work has been carried out in the pharmacy department of Robert Gordon's Technical College, Aberdeen, under the supervision of E. G. Bryant, Ph.C., B.Sc., Head of the Department.

The PRESIDENT, in closing the session, said that members might congratulate themselves on the papers presented. He hoped that the reading of them would stimulate others to keep their eyes open for material for future papers. (Applause.)

Closing Session

The PRESIDENT, at the outset, reminded the Conference that the members had had an opportunity of reading and considering the report. (It was printed in the *C. & D.*, July 8, pages 58-60.) It remained for the report to be moved and seconded, and afterwards discussed. He suggested that the time occupied by the members, who might like to speak on the report, should be limited, the mover taking fifteen minutes, and each subsequent speaker ten minutes at the outside.

Mr. E. S. PECK began by drawing attention to the omission from the report of any reference to the late Mr. Currie, who was such a virile personality and an enthusiastic supporter of the Conference. He felt sure that the members would at least like to remember his name at least that day. (Hear, hear.) Mr. Peck then emphasised what he described as the salient points of the report, outlining the history of the scheme. He pointed out that most of the men who had been responsible for drawing up the report had also been most prominent in the active work of the Conference for ten, or twenty, and in one case thirty years. He paid a warm tribute to the painstaking, persevering, calm, deliberative manner that had characterised the work of the two secretaries, Messrs. Bennett and Hampshire, who had been placed in a very difficult position and, he thought, had come out "top-hole." He urged the Conference to consider the scheme on its merits, not from the point of view of what was best for the Pharmaceutical Society, or the Conference, but rather for the highest use and progress of British pharmacy. The Pharmaceutical Society, of which at least nine-tenths were members, was a grand old society. By the Charter granted to it in 1841 [1845], the organisation was given permission to do certain things in the direction of education, qualification, examinations, to study the advancement of chemistry and pharmacy, and for the protection of the chemist and druggist. But as the result of the test case an entirely new situation had arisen, and they could not overlook the fact: The Courts had made an injunction to restrain the Society from taking part in Industrial Councils, the object of which was the regulation of wages and times of service, and it was not at liberty to form an employers' union. The Society had to form—or at any rate there was formed—an organisation that would carry out some of the functions indicated, namely, the Retail Pharmacists' Union, and that left the Society with less work to do and therefore more time to attend to such matters as education, examination, research, and so on. They must not overlook the fact that the Society had accumulated funds of something like £50,000, of which £20,000 had been accumulated within the last few years, and therefore it must take up this work of scientific research. Touching on the question of delegates, Mr. Peck said that as the local branches were formed it was necessary that their opinion should be focussed in a federation, and that resolutions should be handed on to a conference. That was no new idea, for in 1893 Mr. Charles Thompson, of Birmingham, had embodied it in a paper. Until this year the Pharmaceutical Society had never been able to invite the International Congress to this country, because there was no conference to which the Congress could be invited. Answering the question as to whom the work of the new organisation was to be entrusted to, the speaker said the same people who had

been doing the work in the past—the members of the Conference who were also members of the Society. It was only natural, he declared, that an amalgamation or fusion of the two bodies should take place, and progress on these lines would be to the ultimate benefit of British pharmacy. The main question was, how would it affect the British Pharmaceutical Conference? He thought they must all admit that it would be a free and independent body within the Society, and he believed its position would be materially consolidated. The Society said: "Go ahead with your work, and we will be behind you with the necessary funds." The confusion which arose almost annually with members of local societies, and especially with municipal bodies, would be avoided under the new scheme. Even on Tuesday night that week they had been invited to "the British Pharmaceutical Society's annual conference." It would also give members of the British Pharmaceutical Conference definite executive powers and constitutional authority. When he was secretary of the Conference in 1908, and the National Insurance scheme was being considered, he was asked by Dr. Smith Whitaker, in a discussion regarding the Conference, what was its membership, and, also, what influence it had in the pharmaceutical world. He felt then that, as far as executive powers were concerned, the position of the Conference was weak. The result of fusion would be that that part of the work would be strengthened. The meeting of the delegates would not be merely in the nature of an academic discussion, but definite resolutions would be passed, which the Council must, of necessity, take notice of and act upon. He was of opinion, too, that there would be just as great a list—if not a greater—of towns which were anxious to have the Conference as at present desired a visit from the B.P.C. Discussing the alternative to the scheme, Mr. Peck said he did not like to dwell upon it. There were, however, two objections which he had heard. One was that it would not be retained as a free and independent institution, and, therefore, would sink to the dead-level of rank officialism. Now he had stated that members of the Society got the Council they deserved. The Council appointed the officials, and he maintained that the Conference was too virile to be trodden on too seriously, and it would have sufficient strength to maintain its freedom and independence. But there was no reason to suppose that the Society was going to interfere with its work. In this connection he alluded to the good work done by the Local Associations Executive under the auspices of the Society. There was a fear that the spirit of good fellowship and *camaraderie* would not come into the Conference under the new conditions, and he declared that if he thought that likely he would have nothing to do with it. But, after all, if they thought such a thing might happen it was really a confession of weakness, because the Conference would be run by the same people as at present. Were they going to alter the whole of their lives? Was Dr. Crossley-Holland going to cease to run his smoking concerts and other things on the social side? (Laughter and hear, hear.) He believed the spirit of the Conference would continue in the future, and, in conclusion, suggested it was for those who spoke and voted against the report to put forward some alternative scheme. (Applause.)

Mr. H. FINNEMORE seconded the motion. Dealing with the question of research, Mr. Finnemore said that there had been a good deal of overlapping between the Society and the Conference on the scientific side. He had some sympathy with the sentimental point of view, but we must look at the question from a hard-headed point of view. There had been talk about what the officialism of the Society might do, but he had faith in the future of the Conference.

Mr. H. HUMPHREYS-JONES, in a humorous speech, which caused much amusement, opposed the scheme, but remarked that if the Conference decided upon the change he was quite willing to do his little bit to make things go under the new scheme. His main objection to the scheme was due to what he termed "the bungling of the Pharmaceutical Society," which, having decided to run it, also invited the new Conference to meet in London. The Bath Pharmaceutical Association had in the first instance

extended an invitation to the present Conference, but had decided to put their claim on one side. Why did not the Society wait for the meeting of the Conference, and allow the members of it to have a say in the matter before going any further? At all events, the Society's action had given rise to a certain amount of suspicion that the Society were top dogs, and meant to strangle the Conference as it now existed. It seemed farcical to him after the executioners had arrived on the scene and tried to strangle it to ask the poor Conference to agree. (Laughter.) In looking over the names of the members of the Executive it would be found there were a good many who occupied a dual position. Mr. Jones caused great laughter at this point by illustrating the position that might arise, suggesting the possibility that difficulties might be smoothed over by members of both Executives writing diplomatic letters to themselves. In his opinion, it would be a wrong move to adopt the scheme. It was all very well for Major Peck to say that the same feeling would persist in the Conference when it became part and parcel of the Pharmaceutical Society, but the atmosphere of the Conference was not that of Bloomsbury Square. (Laughter.) People who thrived at the former would not do so at the latter. Whenever he turned round Southampton Row and saw "PHARM," his heart started to throb, probably because a professor from Nottingham University College—Professor Kipping—told him he was a dud. (Laughter.) During the lifetime of the Conference they had only had six sets of secretaries—twelve of those officials altogether—and during the last few years they had had Mr. Bennett and Mr. Hampshire, who had done an enormous amount of work; but he doubted whether they would take the same interest under the new *régime*. Part of the work would probably be done from Bloomsbury Square by members of the staff. His reply to the statement of Major Peck that those who opposed the scheme was, "Let well alone, and carry on as we are." The success of the Conference was largely due to the fact that it was a voluntary body. He was not sure whether members of the Conference who were not eligible for membership of the Pharmaceutical Society were eligible for the position of President of the new Conference. (Professor Greenish: Yes.) He was glad to hear that, because otherwise a good many would be left out in the cold, but he hoped that the Conference would be carried on in the future as in the past.

Mr. JOHN NOBLE (London) supported Mr. H. H. Jones's proposal. We had heard so very little about the expense, and it would be an advantage to know something about what this scheme was going to cost the Pharmaceutical Society. It seemed a case of regilding fine gold. The change might cost the Society £2,000 to £3,000 per annum. The Conference ought to carry on as in the past.

Mr. FRANKLIN (Manchester) suggested that the matter of the £3,000 ought to be cleared up.

Mr. J. G. R. PARKES (Nottingham) said that he desired to express frankly the doubts of some of the local members of the Conference. They were afraid that a little coercion had been going on, and the issue seemed to them to be whether they were to be coerced or whether the Conference was to go on as it had done for so many years. He desired enlightenment on that point.

Mr. J. RUTHERFORD HILL emphasised the independence of the Conference as at present constituted. It lived its own life, had its own inherent vitality and its membership was on a broader basis than that of the Pharmaceutical Society, for it embraced all who belonged to pharmacy. There was considerable feeling with regard to the actual procedure by which this critical juncture had been arrived at, though no doubt everything had been done with the best intention. The Society was keenly interested in the advancement of chemistry and pharmacy, which had been the distinguishing function of the Conference, but there was a difference of opinion as to whether that object could not have been better achieved without in the slightest degree interfering with the established order and basis on which the Conference had for so long and with such conspicuous success carried

on. Detailing the objections to the new scheme, he declared that at present along with absolute independence the Conference had complete irresponsibility. In a public body like the Pharmaceutical Society there could not be such free utterance as an unofficial organisation could indulge in. But, however much the Conference might object to the new organisation, the die was cast for better or worse, and the question had been decided irrespective of anything that could be said or done that day. There was only one course which the Conference could now take, for there could not be two conferences. Any other policy than acquiescence would mean disunion and trouble. Let friendship and goodwill prevail, and for the sake of British pharmacy let the members stand shoulder to shoulder, and thus crown with success the movement for consolidation. Consolidation and union should be the order of the day. He had not reached this conclusion hastily or easily, but to his mind it was clear and unmistakable that no other course was practicable or wise than to accept the scheme and assume responsibility for the maintenance of the Conference. (Applause)

Mr. A. W. GERRARD counselled trust in the Pharmaceutical Society. "If you have no faith in the Pharmaceutical Society," he added, "you know what to do." He wished to know what would be done about the "Year-Book," and wanted to see a strong Pharmaceutical Society.

Mr. FORBES (Perth) suggested that if the proposal had come from the Conference instead of from the Society the way would have been much easier. (Hear, hear.) If the resolution was adopted, they would not have finished: those absent should be consulted, and there should be a referendum.

Mr. MARSH (Leicester) urged that the members of the Conference did not want a retrograde movement. Mr. J. R. Hill had virtually stated that the matter was settled before the members got there—that all was out and dried. This was not fair to individual members, nor to the Conference as a whole. In the proposed order of things, the secretaries would be overshadowed by Bloomsbury Square. There was not sufficient proof from the Pharmaceutical Society that they would carry on the work of the Conference as the members would like.

Mr. D. LLOYD HOWARD, treasurer of the Conference, said he came into the discussion as an independent member, for he was the only member of the Executive who was not also a member of the Pharmaceutical Society. That fact, however, also burdened him with a responsibility which he felt to be very heavy. He was the representative of the non-society man, and would be very sorry indeed if anything were done that would prevent any young man from taking the step which he had taken about 30 years ago. He hoped that the position of such a man would be altered in name only, and it rested with the members of the Conference as to whether the man outside the Society was to be welcomed in the same manner as he (the speaker) had always been received. He attributed a good deal of the natural feeling against the new scheme to perfectly honest misunderstanding. The question of the proposed scheme had been one of the most difficult he had ever known put before any body of men, and had caused many of them, if not all, great searching of heart indeed. They would notice that the executive stated they had adopted it with very great reluctance, and he would have preferred to have been able to carry on exactly as they had done in the past, in spite of all their difficulties. But it could not be. He had been comforted by the statements of Major Peck and Mr. Hill that, though the scheme meant making the best of a bad job, it would be for the benefit of pharmacy. If any mistake had been made it was not of strategy, but only of tactics, and such mistakes did not necessarily mean disaster. He thought the Council of the Society had made a tactical mistake in committing themselves to the scheme before they consulted the Executive of the Conference, but that was his own personal opinion. Providing that mistake could be cleared up, all making up their minds to go forward, each one pulling his weight in the boat, he felt sure that success could be attained. (Applause.)

The PRESIDENT approved of Mr. Howard's remarks, observing that all members were anxious to do their best for the calling to which they belonged. The objections

raised to the proposed amalgamation seemed to him to be mainly classified in two sections—one, the methods or way in which the conclusions, or rather the present position, had arisen; and secondly, doubts whether the Conference under the new conditions could carry on and be as successful in the future as it had been in the past. He could not see why the spirit which was so conspicuous and pervaded the Conference should not become more pronounced under the new scheme, and expressed the view that the amount and number of scientific contributions regarding research would be very much increased in the future. One other section of the Conference he alluded to as very valuable—namely, the "Year-Book." Although it might not be bound in the same colour, they had the assurance that it would be continued, and in all probability its arrangement would be in the hands of the present editor, who had done his work with such marked efficiency. When they came to consider that the Conference would be managed in the same way by the same Executive, by the same officers appointed in the same way as in the past, he could not see that there would be any radical change. He could not see that the Conference, retaining its name and practically its entity, was going to suffer in any degree from the amalgamation, but he could see, and firmly believed, that it was going to be a much more influential body and exercise perhaps more influence upon the Council of the Society in future. He could see nothing but benefits arising from the amalgamation. (Applause.)

MR. SCHOLDS (Lancashire) inquired what was meant in the Executive's report by the expression, "delegate the work of directing the whole of the affairs of the Conference," and

MR. MILNER (Greenwich) asked what proportion of the Executive and of the Conference members were members of the Pharmaceutical Society.

MR. SIMMONS (Salford) began a vigorous speech by raising the question whether a young man wishing to become a member of the Conference would be made an honorary member of the Pharmaceutical Society. Continuing, he expressed the view that gentlemen on the platform did not realise the position they were in. (Laughter.) The men who had been doing the work all these years were to be trusted to come to a decision. Mr. Rutherford Hill had stated the case plainly. The Executive had given the members time to come to a decision. What would have been said if the scheme had been brought up at that meeting without being circulated previously? The good work done by the Local Associations Executive had been organised by the Society, and if the Conference could continue under the same sort of paternal management it would do well.

MR. E. WHITE said that the Executive were very grateful to Mr. Simmons. He (the speaker) knew more about the Pharmaceutical Society's work than most people. The Conference was a rather "un-get-at-able" body; if a special meeting were called, nobody would come. The Council wished to continue the Conference in the same spirit, and every provision was made for it to go on exactly as before.

DR. SYMES, in a reminiscent speech, said that the Conference had done, and was doing, very good work. It was a case, however, in which they could not let well alone. The Council of the Society helped the Conference when it was first founded, and had always desired to see it prosper. The home of the Conference was at 17 Bloomsbury Square. The Council had avoided what would clash with the Conference, which might do better under the Society than on its own account. The members of the Council present seemed to be jolly good fellows—(laughter and applause)—and the Society had fathered the Conference during the war in a very able manner. They wanted to keep the spirit of the Conference going.

MR. APPLETON (Sheffield) suggested that the discussion had gone on long enough.

MR. CONNOR (Leeds) asked whether Sir William Glyn-Jones (who was present) could be called upon to address the meeting.

MR. ANTCLIFFE (Sheffield) urged that the vote should be taken at once.

The vote was taken by a show of hands, and the reso-

lution of Mr. Peck was carried by a majority. It was suggested that a second vote should be taken; this was done, and the second vote was unanimously in favour of the resolution. The President announced that a consequent alteration in the constitution and rules of the Conference was necessary, and the Executive was authorised to make the alteration.

TREASURER'S REPORT

On the motion of MR. FOURACRE (London) the treasurer's report was taken as read.

The annual financial report, presented by the TREASURER (Mr. D. Lloyd Howard), is summarised as follows:—

Income: Subscriptions, £564 10s. 6d. (last year, £565 2s. 2d.); sales of "Year-Book," £46 7s. (last year, £49 3s. 2d.); reprints, £2 19s. 4d.; advertisements in "Year-Book," £74 19s. 7d. (last year, £76 2s. 6d.); interest on anonymous donation, £31 5s.; total, £720 1s. 5d. Expenses: "Year-Book" (printing, publishing, editor's honorarium, etc.), £553 3s. 9d. (last year, £673 3s. 8d.); advertising costs, £26 0s. 10d.; secretarial expenses, £45; postage, etc., £27 14s. 8d.; printing, etc., £38 17s. 9d.; other items, £25 2s. 11d.; total (including deficit of £239 13s. 8d.), £955 14s. 7d.

The deficit stands, it will be seen, at the slightly lower figure of £235 13s. 2d. The financial statements of the Bell and Hills Fund and of the Conference Research Fund, are also included in the report.

ELECTION OF OFFICERS

On the motion of Dr. Thomas Stephenson, the following officers were elected for the year 1922-23:—

Chairman, F. W. Gamble, Ph.C.

Treasurer, D. Lloyd Howard.

General Secretaries, R. R. Bennett, C. H. Hampshire.

Local Secretary (to be nominated by the London Conference Committee).

Other Members of Executive Committee, G. S. Kitchen, Dr. A. J. Barnes, F. P. Sargeant, H. Skinner, E. White, C. E. Corfield, H. Deane, N. Evers, H. Finnemore.

Auditors, W. F. Gulliver, F. C. J. Bird.

MR. GAMBLE briefly thanked the Conference for his selection as chairman, adding that he would do his best to support the spirit of the Conference and carry on its work. He trusted the members of the Society who had not taken an interest in the Conference would join it, and he had no doubt that the Conference would gain additional strength.

THANKS TO PROFESSOR GREENISH

MR. C. A. NOBLE (London), who humorously announced himself as the possessor of a limited vocabulary, moved a vote of thanks to Professor Greenish for his services in the chair. The Conference had never had a more popular President. They had had the advantage of his chairmanship in discussing subjects in which he took such a keen interest, and it was well known that many thousands of young pharmacists had passed through his hands at Bloomsbury Square.

Professor GREENISH briefly acknowledged the vote, which was carried with enthusiasm. He had done his best, he said, but modestly added that, had it not been for the secretaries, he did not know how he would have got through. They told him what to do.

The PRESIDENT then declared the proceedings of the Conference closed.



Photo]

[Cleworth

SIR W. GLYN-JONES AND MR. GAMBLE ARRIVING AT THE OPENING SESSION

The Social Side

THE social events of the Conference were to some extent overshadowed by the importance of the closing session. This is not to say, however, that they were lacking in interest, nor that visitors failed to appreciate the comprehensive arrangements made for sight-seeing in comfort. It was evident on the Tuesday morning that the ladies were eager to be initiated into the mysteries of lace-making at a factory at Basford. Another party visited St. Mary's Church, under the expert guidance of Mr. Beilby. On Wednesday these excursions were repeated, the parties changing over.

* * *

Some idea of the way in which Conference visitors profitably fill their time—*nisi horas serenas*—is given by the illustrations which, by the enterprise of Mr. Cleworth and our expert staff, we are able to give in this number with something like pre-war promptitude.

* * *

The dinner, held at the Victoria Hall on Tuesday evening, was distinguished by the point and humour

in her rulers—and never more so than now. The Mayor, replying to the toast (which was enthusiastically received), said that Nottingham was an old town with the disabilities common to old towns, but every effort had been made to improve it. Arterial roads were under construction, with consequent relief of unemployment. Having instanced further features of municipal enterprise, his worship proceeded to delight his audience with some racy stories, each of which seemed funnier than the last, and some of which were indigenous. The next toast, "The Pharmaceutical Society of Great Britain," was briefly proposed by Mr. D. Lloyd Howard. Mr. Neathercoat, in response, said that the Pharmaceutical Society and the British Pharmaceutical Conference had been associated for a very long time. They had a great deal in common. The B.P.C. had worked for the benefit of the pharmaceutical community, both on the research and the social sides. The founders of the Conference would have welcomed some opportunity of getting these bodies more closely together—as closely as possible, in fact. The Executive had dealt with the situation in a bold and business-like way. The remaining toast, that of the Conference, was proposed by Mr. H. Humphreys Jones and acknowledged by the President.

* * *

Truth is sometimes a parody on fiction. The escapade of Mr. Pickwick at the White Horse Hotel, Ipswich, was in some respects paralleled at one of the Nottingham hotels during the Conference week. Fortunately, the lady in the case had a wholesome sense of humour, and other visitors whose doors were similarly devoid of keys were duly sympathetic.

* * *

Few of those who heard the eminently practical speech of the Mayor of Nottingham at the opening of the Conference, and relished the anecdotes that rose so readily to his lips at the dinner, were aware that for some time past his worship has taken a personal interest in the success of this Conference. This interest, naturally, has been a potent factor in aiding the local Committee to shoulder their responsibility. If Nottingham is "the home of conferences," the present Mayor of Nottingham is manifestly the ideal host on such occasions.

* * *

The smoothness with which everything has gone off forms the best of all tributes to the energy and judgment of the local committees. Down to the last button, all has been in place, silently and efficiently. If this Conference comes to be known in pharmaceutical history as "the best and the last"—as Browning said in another connection—the historian will be performing an act of simple justice if he reprints the names of Mr. E. C. Carr and his loyal colleagues.

* * *

The usual concert took place on Wednesday evening in a hall fitted up in imitation of Old Nottingham. A larger hall was reserved for dancing. Mr. Edmund White was in the chair, supported by Mrs. Greenish, Mrs. Gamble, the President (Professor Greenish), and the chairman-elect (Mr. F. W. Gamble). The presentation of books to the local association, omitted from the afternoon meeting, was made to Mr. Ross Sergeant, who returned thanks. As the concert began late, encores were barred. The pianist was Mr. F. W. Gray; the artists were Miss Godson, Mr. Fred Laws, Mr. Harry Heath, Mr. Simmonds, and Mr. Eacott, the last-named being hailed as the unofficial poet of the Conference. Votes of thanks were accorded to all the local officials. Mr. Godson was presented with a safety razor, and Mr. Middleton with a fountain pen. Mr. Ross Sergeant received a presentation on behalf of Mrs. Ross Sergeant (a large basket of flowers), and Mr. E. C. Carr a silver cigarette case; both spoke in acknowledgment. The programme was highly appreciated, and was carried on to 11 p.m., when some departed for hotel or home. The majority remained for the dance, a buffet being provided. Dancing was enthusiastically taken up and continued to 2 a.m. on Thursday, when the devotees rushed to obtain a little rest before the 9.25 a.m. to Dovedale.



Photo] [Cleworth
EARLY ARRIVALS AT THE UNIVERSITY—MR. AND MRS. CHARLES THOMPSON AND FRIENDS

of the speeches and by the freedom from restriction as to length. No such *contretemps* as war-time conditions or strikes have imposed on recent Conference dinners marred the proceedings, and the sheer merriment of some of the stories related reduced more than one member to helpless laughter. Supporting the President at the top table were the Mayor and Mayoress of Nottingham, the Sheriff (Mr. Parkes), Mr. E. T. Neathercoat (President of the Pharmaceutical Society), Sir William Glyn-Jones (secretary of the Society), Messrs. E. Saville Peck, Herbert Skinner, A. R. Keith, and E. White (members of the Society's Council), Dr. Charles Symes, Mr. W. A. H. Naylor, Mr. E. H. Farr, Mr. F. W. Gamble, Mr. C. A. Hill, Mr. R. R. Bennett, Mr. C. H. Hampshire, Mr. H. Finmore, and Mr. H. Humphreys Jones. Clusters of candles and vases of flowers on the tables indicated that the committee responsible for the arrangements had an eye to artistic effect. After a capital dinner and the loyal toast, an instalment of a musical programme ushered in the speeches. With Mr. F. Gray as a sympathetic accompanist, Miss Lucy Goodwin delighted the company in Arne's "The Lass with a Delicate Air" and other solos; Mr. J. E. Heath proved an effective foil as humorist. The toast of "The City of Nottingham" was safe in the practised hands of Mr. C. A. Hill, who took the opportunity of thanking the Mayor for his twofold hospitality. Nottingham, said Mr. Hill, was not only the centre of the lace-making industry, but also supplied the whole world with machinery for the purpose. Nottingham was fortunate

Who were There

The following is a list of visitors to the Conference who signed the attendance book:—

Alcock, F. H., and Mrs., Birmingham
 Antcliffe, H., Sheffield
 Attwood, W. A. C., London
 Bayles, H., London
 Beacock, J. H., Leeds
 Bell, W. A., Southsea
 Bennett, R. R., and Mrs., London
 Bonnar, C. G., London
 Bowis, W. J., Nottingham
 Boyes, G. R., London
 Briggs, G. W., Sutton-in-Ashfield
 Bull, B. A., Nottingham
 Burr, P. W., Birmingham
 Carr, E. C., Nottingham
 Carr, F. H., London
 Clay, W. J., Nottingham
 Clarke, R. F., New Milton
 Cleworth, J., Manchester
 Cowley, Miss Grace, Nottingham
 Cragg, W., Nottingham
 Crossley-Holland, F. W., Southbury
 Cundell, R. P., Leeds
 Deane, H., Long Melford
 Deck, Arthur, Cambridge
 Deck, K., Cambridge
 Dickson, D., Manchester
 Dickson, L., Manchester
 Duncan, J. G., and Mrs., Wallasey
 Eastwood, J., Manchester
 Eastwood, T. E., Manchester
 Edwards, A. W., London
 Ellerington, J. P., London
 Evans, J. H., and Mrs., Liverpool
 Evans, L. M., Ilford
 Eyre, W. R., Scarborough
 Farr, E. H., Uckfield
 Ferriday, A. J., Liverpool
 Finnemore, H., London
 Fletcher, T. W., Liverpool
 Forbes, J. F., and Mrs., Perth
 Forster, W., Seaham Harbour
 Fouracre, R., London
 Francis, Alan, London
 Francis, J. B., Wrexham
 George, E. J., and Mrs., Walsall
 George, R. W., London
 Gerrard, A. W., Birmingham
 Gill, W., Nottingham
 Gilmour, J. P., London
 Gosling, A. W., London
 Greenfield, H. H., Sheffield
 Greenish, H. G., London
 Gulliver, W. F., and Mrs., London
 Hampshire, C. H., London
 Highfield, F. C., and Mrs., Cardiff
 Hill, C. A., London
 Hill, J. M., Ipswich
 Hill, J. R., Edinburgh
 Hobbs, A. E., Tunbridge Wells
 Holland, W. J., Uxbridge
 Howard, D. L., Chigwell
 Irvine, P., and Mrs., London
 Johnson, J. C., and Mrs., Birmingham
 Jones, H. H., Liverpool
 Kassner, H. C., New York
 Lawson, J., Nottingham
 Lean, W., Burton-on-Trent
 Lester, L. W., London
 Lewin, W. J., London
 Marsh, A. E., Leicester
 Marsh, Edith, Leicester
 Martindale, W. H., London
 Meadows, V. J., Manchester
 Meek, H. O., Nottingham
 Melhuish, A. R., London
 Mellor, E. M., Uttoxeter
 Milner, J., Greenwich
 Mumford, H. G., and Mrs., London
 Naylor, W. A. H., Bromley
 Nicholl, J. W., Belfast
 Noble, C. A., London
 Noble, John, London
 Oakley, H., Wolverhampton
 Paley, J., and Mrs., Liverpool
 Parker, E., Scarborough
 Parkes, G. J. R., Nottingham
 Pass, C. K., Burton
 Pass, H. G., Aberdeen
 Pearson, C. E., London
 Peck, E. S., Cambridge
 Pegg, J. A., Mansfield
 Purse, F., Leicester
 Rayson, J. T., Nottingham
 Richardson, A., Hull
 Robinson, J. H., Liverpool
 Royce, S., Nottingham
 Sampson, J. W., Nottingham
 Saunders, W. H., and Mrs., Liverpool
 Scattergood, E., Nottingham
 Scholes, W. J., Eccles
 Sergeant, F. R., Nottingham
 Shepherd, J. H., Woodville
 Simmons, E. H., Salford
 Skinner, H., London
 Smith, A. N., Nottingham
 Smith, F., and Mrs., Birmingham
 Solomon, A. H., Kew
 Southerden, F., Exeter
 Sparrow, A. B., and Mrs., Southsea
 Stephenson, T., Edinburgh
 Stiles, M. H., Doncaster
 Symes, C., Liverpool
 Tocher, G. A., London
 Toogood, E. J., and Mrs., London
 Turner, A. E., Bulwell
 Walker, C. F., Manchester
 Want, W. P., London
 Waring, E. S., Nottingham
 Wherley, C., Wallasey
 White, E., London
 Williams, J., Manchester
 Williamson, F. A., Preston
 Whitfield, G., Scarborough
 Wood, J., Seacombe
 Wood, W. F., Nottingham
 Woodward, Elsie, London

Arsenic Poisoning

SIR WILLIAM H. WILLCOX, in a paper before the Medical-Legal Society on July 4 on acute arsenical poisoning, gave the following account of the preparations used:

Arsenious oxide (As_2O_3) is the preparation most commonly used for criminal purposes; it is a white inodorous powder, almost tasteless, and slightly soluble in water; about $\frac{1}{2}$ gr. dissolves in 1 oz. of cold water, and 6 to 12 gr. in a similar quantity of boiling water. It can be added to food and drink without fear of detection, and persons wishing to use it for criminal purposes appear to have no difficulty in obtaining it. When sold to the public the Regulations of the Poisons Acts should be complied with, and one of the conditions of sale of white arsenic is that it should be coloured by the admixture of at least one-sixteenth of its weight of soot or indigo. The evidence of recent notable trials shows that this rule is sometimes honoured in the breach rather than in the observance (Armstrong case). An easily available source of white arsenic which is often forgotten is the chemical laboratory. The poison can be obtained in any quantity from wholesale firms for laboratory purposes without any restriction as regards its sale. Every chemical laboratory possesses large quantities of arsenic easily accessible to anyone visiting or using it.

Arsenious oxide is sold in combination with sodium hydrate or carbonate as weed killer. This may be a strong solution of sodium arsenite containing 14 to 40 per cent. of arsenious oxide. The liquid preparation is usually coloured by the addition of aniline dye such as fluoresceine, though during the war it was sold uncoloured. The solid form of weed killer consists of a fine powder usually coloured and containing a high percentage of arsenic. An example of this is Eureka weed killer, which was mentioned in the Greenwood case. A sample was found by Mr. J. Webster to contain 60 per cent. of arsenious acid and to be coloured with phenolphthalein. The powder was very soluble in water and formed a pinkish-red solution which was decolorised by acids. These preparations are most poisonous; not only may they give rise to accidental poisoning, but there is reason to believe that they have been used for criminal purposes on many occasions. An instance of several cases of accidental poisoning due to liquid weed killer occurred in Sussex in 1919, when a sack of sugar absorbed a quantity of liquid weed killer from a leaky tin placed beside it during transit in a railway carriage. The consumption of the contaminated sugar gave rise to acute arsenical poisoning. In the case *flex v. Bingham*, 1911, three fatal cases of arsenical poisoning were the subject of inquiry; these were undoubtedly due to weed killer.

In May, 1921, an inquest was held on a woman named Hanktelow, at Beckenham, where death was found to be due to acute arsenical poisoning. In this case the source of the arsenic appeared to be Eureka weed killer.

Liquid preparations, known as "wood preservatives," similar in composition to weed killer, are used for destroying insects infesting wood. Since these are not coloured there is great risk of accidental poisoning from their use. The liquid may accidentally contaminate food or drink and give rise to acute arsenical poisoning. An instance has recently been brought to my notice where, after treatment of the interior of a large hut with arsenical wood preservative, the dust of the hut was found to contain a considerable percentage of arsenic, and the air of the interior was also contaminated with arsenic. Arsenic in combination with alkali is used largely in the manufacture of sheep dips, and these preparations have sometimes given rise to acute arsenical poisoning. A solution of lead arsenate is commonly employed in fruit spraying, and cases of severe arsenical poisoning due to these preparations have been under my care.

There is no doubt that the common use of these commercial preparations of arsenic is a frequent cause of fatal arsenical poisoning, and the time appears to have come when the mode of sale of these preparations should be carefully considered with a view to the safeguarding of the public against risk of accidental poisoning and to prevent dangerous homicidal poisons being so easily accessible to persons with criminal intentions. Other preparations of arsenic, such as sodium arsenite, metallic arsenic,

arsenic acid and sodium arsenate, copper arsenite (Scheele's green), a mixture of copper arsenite and copper acetate (Schweinfurth green, Paris green, emerald green), arsenious sulphide (orpiment or King's yellow), have given rise to acute poisoning, usually of an accidental or suicidal nature; and the medicinal preparations of arsenic must not be forgotten as causes of acute poisoning when taken in excessive doses. At the annual meeting of the British Medical Association, at Glasgow, on July 26, the following resolution, proposed by Sir William H. Willcox, was carried unanimously:—

That, in the opinion of this Section, the sale of arsenical preparations, included in Section 2 of the 1908 Act, should be limited to properly qualified and competent persons as registered pharmacists, and that the sale of those preparations of arsenic, included in Section 2 of the 1908 Act should be limited to purchasers who have obtained a licence for the possession of such dangerous articles.

Summer Outings

A Visit to the Lakes

On July 19, the Lancaster and District Pharmacists' Association journeyed in motors, *via* Kendal, to Windermere and Bowness, a lovely 30-mile drive. After tea at the Royal Hotel, the majority took the steam launch trip on the lake. Returning to the vehicles, the venue was Newby Bridge and Grange-over-Sands, where a halt was made for refreshments for the ladies. The return *via* Levens was much enjoyed. Mr. R. T. Simpson (President), Mr. A. Bate (Treasurer), and Mr. Robertson made excellent arrangements.

A Joint Excursion

The Newcastle-upon-Tyne and Sunderland pharmacists and friends journeyed recently by charabancs to Chollerford and thence to Hexham. Over 90 sat down to a capital repast at the Royal Hotel, in the chair being the Newcastle Association's president, Mr. H. S. Williamson (North Shields). After tea, Mr. John Gibson, F.S.A. (Scot.), F.C.S., the well-known Hexham antiquary and chemist, conducted the party over Hexham Abbey and grounds, giving an interesting historical survey. The hon. secretary, Mr. Rufus Hepworth (Newcastle), with Mr. F. Gilderdale and Mr. W. Kerse, made excellent arrangements which tended to the complete success of the outing.

A Visit to Taplow

The South-West London Chemist's Association held the annual outing on July 19, 66 members and friends leaving the "Plough," Clapham Common, for Taplow. The route was via Wimbledon, where other members were collected, and then Kingston, Hampton Court, Weybridge, Virginia Water and Maidenhead, Taplow being reached about 5 p.m. Tea was served at the Dumb Bell Hotel, Mr. E. A. Atkins (president) presiding. The company then adjourned to the grounds, where tennis and rounders were enjoyed, and a few sporting events contested, with the following results: Egg-and-spoon race: Winner, Mrs. Young. Ball bouncing: Winner, Miss Barbara Mason. Putting the weight: Winner, Mr. O. Atkins. Wheelbarrow race: Winner, Mr. Wrench. The prizes were provided by Burgoyne, Burbidges & Co., Ltd., and the President expressed the thanks of the company to Messrs. Beech and Mason for arranging the excellent route chosen, and to the hon. secretary (Mr. D. A. Rees) for organising the trip. The return was made through Windsor, Staines, Sudbury, Hampton Court and Kingston.

Cardiff Chemists' Picnic

The first picnic of the season held under the auspices of the Cardiff Pharmacists' Association took the form of an excursion to Minehead on July 19, about twenty-four taking part. The trip across the Bristol Channel was much enjoyed, a call being made at Barry, where a few more "knights of the pestle" were taken on board. Upon arrival at the destination the President (Mr. A. J. Harris), who acted as guide, conducted the party to Greenleigh Farm, where tea was provided. The walk through the pine woods to the farm was exhilarating

and interesting. After tea the photograph was taken. A march back was then called, and this entailed several difficult climbs, but the effort was quite worth while, the pathways being lined with the heather and the purple flower in full bloom, and wimberries or



CARDIFF PICNIC PARTY

bilberries were in profusion. A visit was made to the church on the hill, an ancient edifice showing good examples of Norman architecture, and where still remains the chained Bible. There is also a beautiful specimen of an old rood screen, which appears to be almost white when contrasted with the remaining woodwork. For the few hours before returning the company divided into smaller groups, the ladies strolling round the shopping quarters, whilst the sterner sex visited various parts of the town. Cardiff was reached about midnight.

Association Affairs

Edinburgh.—The summer session of the Edinburgh Chemists, Assistants and Apprentices' Association closed with a botanical demonstration in the Pharmaceutical Society's House, 36 York Place, Edinburgh, on July 19. Mr. Thomas Smith (president) in the chair. A collection of fresh specimens, comprising 42 natural orders, 120 genera and 140 species, collected in the Lothians and Fife-shire, was laid out in a systematic arrangement, beginning with the Ranunculaceae and ending with the Marchantiaceae. These were described by Mr. Rutherford Hill, to whom a vote of thanks was also awarded. A vote of thanks was also awarded to Miss Purdie, Ph.C., Mr. Peter Fenton, Mr. Smith and Mr. Teesdale, who had collected specimens.

London (S.E.).—The South-East London Chemists' Association held their annual general meeting on July 11. The Secretary (Mr. T. W. Cleave) read his annual report, and the treasurer (Mr. Ralph) presented the accounts, which showed a debit balance of about £9. There is a credit balance of over £21 in the funds. The report was carried unanimously. Mr. Ralph proposed a vote of thanks to Mr. Turner for his work as financial and social secretary. The secretary was instructed to write the local members of Parliament asking them to vote for the rejection of the Shop Hours Act Amendment Bill. A vote of condolence was passed on the death of Mr. Haycraft, 357, New Cross Road.—At a committee meeting held on July 18 Mr. J. Milner was re-elected President. The sum of £3 3s. was voted to the orphans' fund of the Pharmaceutical Society.

Deed of Arrangement

Hutchinson, Robert Crawford, Claxton Street, Blackhills Road, Horden, drug store proprietor.—Dated July 10; filed July 17. Liabilities, unsecured, £354; estimated net assets, £150. Trustee: P. S. Booth, 2, Bixteth Street, Liverpool.

Insurance Act Dispensing

A Record of matters concerning Chemists' interests in the National Health Insurance Acts

Reports from Local Centres

ENGLAND

Southport.—At a meeting of the Insurance Committee, on July 18, various changes in the panel were notified, and a long discussion was held in regard to the obtaining of medicines from chemists after closing hours. It was ultimately decided to leave the matter for the consideration of the chemists, and for them to report.

July Drug Tariff

The following are the alterations for July in the Insurance Drug Tariff for England and Wales:—

Lower.—Acid. nit. dil., 7d. lb.; acid. sulph. dil., 5½d. lb.; acid. tannic., 6s. lb.; aq. aurant. flor., 1s. 10d. lb.; atrop. sulph. 1s. 3d. gram.; barbitonum, 1s. 6d. oz.; boroglycerin, B.P.C., 2s. 10d. lb.; colloid. flexile meth., 3s. 6d. lb.; colloid. meth., 3s. 2d. lb.; cod. cinchon. rub. ex. conc. 4s. 9d. lb.; ext. bellad. liq., 1s. 1½d. oz.; ext. filic. liq., 1s. 2d. oz.; ext. malti, 11½d. lb.; ext. malt. c. ol. morrh., B.P.C., 1s. lb.; ext. viburn. liq., 11s. lb.; ferri et quin. cit., 1s. 1d. oz.; glycerinum, 1s. 7d. lb.; glycer. acid. boric., 2s. 4d. lb.; glycer. acid. carbol., 2s. 1d. lb.; glycer. belladon. B.P.C., 5s. 3d. lb.; glycer. boracis, 1s. 11d. lb.; glycer. pepsin., 4s. 9d. lb.; glycer. plumbi, subacet., 2s. 4d. lb.; glycer. thymol. co. B.P.C., 1s. 1d. lb.; inf. buchu. ex. conc., 4s. 9d. lb.; lin. aconiti co. B.P.C. meth., 5s. 3d. lb.; lin. belladon. meth., 4s. 4d. lb.; lin. camph. am. meth., 2s. 8d. lb.; lin. opii meth., 3s. 6d. lb.; liq. copaib. et buchu. et cubeb. B.P.C., 5s. 9d. lb.; liq. strych. hydrochl., 4s. lb.; magnesia levis, 1s. 10d. lb.; mel boracis, 1s. 4d. lb.; menthol, 3s. oz.; methyl salicylas, 4s. lb.; ol. carbolat. 5 per cent., 1s. 3d. lb.; ol. cinnaam., 5s. 6d. oz.; ol. eucalypt., 2s. 3d. lb.; ol. menth. pip. (re-distilled), 13s. lb.; ol. morrhuae (Norwegian, opt.), 9s. gal.; opium pulv., 1s. 10d. oz.; pil. calomel. et colocynth. B.P.C., 1s. 5d. doz.; pil. ferri gr. v., 6d. doz.; pil. ferri valerian. co. B.P.C., 4s. 8d. doz.; pil. quin. sulph. gr. ii, 2s. 3d. doz.; pil. saponis co. gr. iv, 1s. 3d. doz.; pot. acet. (dry granules), 2s. 4d. lb.; pot. carb., 1s. 10d. lb.; quin. hydrochl., 3s. 10d. oz.; quin. hydrochl. acid., 4s. 2d. oz.; quin. salicyl., 5s. 4d. oz.; quin. sulph., 2s. 11d. oz.; salicin, 2s. oz.; sodii phosph., 1s. 1d. lb.; sodii salicylas (cryst.), 4s. lb.; spt. ammon. aromat., 4s. 5d. lb.; strych. hydrochlor., 3s. 6d. oz.; sulphonat. 1s. 11d. oz.; sulphur præcip., 1s. 5d. lb.; sulphur sublim., 5½d. lb.; syr. codeinæ phosph., 2s. 6d. lb.; syr. pruni virg., 1s. 3d. lb.; tab. Easton, 1 dr., 2s. 1d. doz.; ditto, ½ dr., 1s. 5d. doz.; tab. guaiacol. carb. gr. v, 2s. 7d. doz.; tr. buchu. 6s. 8d. lb.; tr. chlorof. et morph. co., 8s. 6d. lb.; tr. lobel. æth., 8s. 6d. lb.; tr. myrrhæ, 7s. 4d. lb.; tr. pruni virg., 4s. 9d. lb.; troch. acid. tannic., 3s. 3d. lb.; troch. bismuthi co., 3s. 9d. lb.; troch. krameriæ, 4s. lb.; troch. kramer. et cocain., 5s. 3d. lb.; troch. sulphuris, 2s. 10d. lb.; ung. acid. boric. flav., 1s. 3d. lb.; ung. hyd. am. dil. B.P.C., 2s. 4d. lb.; ung. iodi denigris, B.P.C., 3s. 6d. lb.; ung. methyl. salicyl. co. dil. B.P.C., 3s. 10d. lb.; ung. plumbi iod., 5s. 3d. lb.; ung. resorcin. B.P.C., 5s. 3d. lb.; vinum colchici, 3s. 10d. lb.

Higher.—Acid. citric. pulv., 3s. 8d. lb.; acid. tartaric pulv., 2s. 2d. lb.; argent. nit., 3s. 4d. oz.; argent. nit. indur., 3s. 8d. oz.; ferri et ammon. cit., 4s. lb.; lin. terebinthinæ, 2s. 3d. lb.; lin. tereb. acet., 3s. 2d. lb.; morph. acet., 2s. 3d. lb.; morph. hydrochl., 13s. 4d. oz.; ol. croton 11½d. oz.; ol. ricini, 1s. lb.; pot. cit., 4s. lb.; pot. permang., 1s. 6d. lb.; sodii citras, 3s. 9d. lb.; spt. æther. nitrosi, 5s. 10d. lb.; tr. zingib. fort. 3s. 7d. lb.

Complaint Against a Bath Chemist

An inquiry was held on July 20 by the Ministry of Health into the matter of the Bath Insurance Committee and Mr. H. W. T. Gedge, a panel chemist. (C. & D., May 6, p. 63.) Mr. E. H. Tindal Atkinson presided, and sitting with him were Mr. Francis Bate, O.B.E., and Mr. E. T. Neathercoat. The Committee claimed that a *prima facie* case had been made out that the continuance of Mr. Gedge on the panel was prejudicial to the medical benefit service.

Mr. Wansborough, for Mr. Gedge, said there were eight complaints. In a number of them it was contended that Mr. Gedge, through his agent, filled up six-ounce bottles of medicine, whereas the doctors' prescriptions were for eight-ounce. In the hurry, just

before closing time, the assistant did not notice that six-ounce bottles were brought to the shop, and he suggested that there was so little difference between an eight-ounce bottle and a six-ounce bottle, that, in a rush, a mistake could easily occur. It was charged that sufficient supervision had not been provided. The stock medicines were made up by Mr. Gedge himself, or under his immediate supervision. His contention was that when Mr. Gedge did that he was dispensing the medicine. The physical act of pouring the stock medicine from one bottle to another and handing it over the counter was surely not dispensing. Replying to Mr. Neathercoat, Mr. Wansborough agreed that the writing of the label was of vital importance, yet it was only copying the doctor's orders. If they concluded that it was dispensing then there were two acts of dispensing. Mr. Wansborough said that one other charge related to the alteration of a prescription from half an ounce to eight ounces. The assistant supplied a liniment, and at the end of the month Mr. Gedge, on gathering the prescriptions together to send to the Pricing Bureau, noticed what appeared to be half an ounce, which was a ridiculous amount, and as the assistant did not remember what had been supplied, Mr. Gedge, thinking eight ounces must have been supplied, which was the usual amount, put it in in his own writing. After evidence had been called as to Mr. Gedge's character, the chairman said they would take it that Mr. Gedge was incapable of fraud. Mr. Gedge was then called, and said he had no intention of charging for anything more than he believed had been supplied. He left practically the whole of the insurance work to his assistants.

Mr. Wansborough stated that the gain to the chemist by supplying six ounces instead of eight ounces was about one-third of a penny. Maurice Iveson, an apprentice, said he had had three years' experience with Mr. Gedge. He did not knowingly supply six ounces instead of eight. Mr. Gedge usually supervised his dispensing. The result will be made known later.

London Chemists' Costing System

From "The Script," July, 1922.

LAST month we called attention to the position of the above, which contained the London Retail Price List. The response which has come to us in answer to that appeal has been wholly in favour of continuing the list, though a quarterly basis was the one on which most would have preferred it. The number, however, has not been sufficient to warrant us in running the risk of any further losses. It is a remarkable thing that all the replies have been on one side only, and that is a costing list. Many have mentioned the list of THE CHEMIST AND DRUGGIST as filling the bill, but some have asserted that the profit allowed there is insufficient. One or two have said that they prefer a list where the proprietaries are included, but we understand that THE CHEMIST AND DRUGGIST feel that lists such as Sangers' with the monthly changes, completely meet the need, and it would be needlessly duplicating. With that view we largely agree. Sangers' is very complete, and if the price of an out-of-the-way thing is wanted it can easily be supplied. THE CHEMIST AND DRUGGIST list in drugs is, of course, fuller than ours, and doubtless now that they have agreed to take over the books and costing figures of the London system, the point of view which comes largely from London will be considered. We have not received one reply which does not give us some caustic comment on another list which shall be nameless. That is no more than we should have expected from our knowledge of the methods on which lists to be effective are, or ought to be, built. With the cessation of our list there will only be one in the field, and that will be the one of THE CHEMIST AND DRUGGIST, and we should recommend all users of the London list to take that of THE CHEMIST AND DRUGGIST, which we feel sure they will be satisfied with as being on a cost on turnover basis. Any further percentage for positional businesses can easily be added, just the same as it could be done in the case of the London one.

Trade Report

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbling and the like. Qualities of chemicals, drugs, oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42 Cannon Street, E.C.4, July 27.

QUIET conditions continue to prevail in the Mincing Lane produce markets, particularly as regards crude drugs, buyers of which, we understand, appear to have placed quite a number of orders after the auction last week. Export business with the United States has improved somewhat, and July, in this respect, has already proved a better month than June. Among the drugs which have advanced in America are peppermint oil, Hydrastis, jalap, senega and buchu; the latter drug is also held for an advance of 3d. on the spot; still higher prices are asked for Dutch caraway seed; star anise should be easier owing to arrivals in quantity. Agar agar is still very firm, and in nux vomica it is difficult to put through forward business. Menthol is unchanged, but firm, and case lots cannot be done under the quoted price; grey Jamaica and native red sarsaparilla have changed hands at the auction prices. Linseed oil is very firm, but turpentine is lower. Industrial and mineralised methylated spirit is 4d. per gallon cheaper. Shellac is steady.

Higher	Firmer	Easier	Lower
Acetone	Fennel seed	Ammonia (anhydrous)	Benzonaphthol
Acid oils	Hemp seed	Bromides	Potash
Arrowroot	Peppermint oil (Amer.)	Cassia oil	bichrom.
Cajuput oil	Sodium prussiate	Citric acid	Cinnamon-leaf (Cey.)
Caraway seed (Dutch)		Clove oil	Sal ammoniac
Pitch		Hen yolk	Sodium bichrom.
		Ground-nut oil (deod.)	Spirit, methylated
	Steadier	Hexamine	Turpentine
		Orange oil (W.I.)	Wormseed oil
		Palm-kernel oil	
	Oxalic acid	Paraformaldehyde	
	Paraldehyde	Pimento	
		Rape oil	
		Spike oil	
		Tartaric acid	

Cablegram

NEW YORK, July 26.—Business is fair. Peppermint oil in tins is 5c. dearer at \$1.95 per lb. Hydrastis (golden seal) has also advanced to \$3.50, and jalap to 22c. Senega has advanced 10c. to 75c., and round buchu leaves to \$1.10. Cartagena ipecacuanha is cheaper at \$1.55, and vanillin has declined to 43c. per oz.

Crude Drugs, etc.

AGAR AGAR is firm with spot sellers of Japanese No. 1 at 4s. 6d., and new crop to arrive at 4s. 2½d. c.i.f. No. 2 on the spot is 4s. 1½d., and to arrive 3s. 11d. c.i.f. No. 3 on the spot is 3s. 3d. per lb.

ANISE STAR.—Two hundred cases have arrived in London, which should ease the spot situation. Previous price was about 80s. per cwt.

ANTIMONY.—The tone is very steady, with a fair demand for English regulus at £27 to £29 10s. for small lots, according to brand. There is but little ordinary metal to be had. Warehouse lots of foreign refined range upward of £24 per ton, but c.i.f. offers are made at less money. Crude is chiefly nominal, but rather firmer.

BALSAM TOLU.—Spot supplies are practically non-existent, 3s. per lb. being the quotation for the little lots obtainable.

BUCHU.—Fair round green is held for the higher price of 3s. 9d. per lb.

CADMIUM.—A moderate demand is reported, but the undertone is inclined to be easier at about 5s. 6d. to 5s. 9d. per lb.

CAMPBOR (CRUDE).—The spot value is steady at 3s. 4½d. per lb., and for August-September shipment 3s. per lb. c.i.f. is quoted.

CAMPBOR (REFINED).—Japanese 2½ lb. slabs continue quiet, with spot sellers at 3s. 5½d. per lb., and for August-September shipment 3s. 4½d. c.i.f. has been paid. ¼-oz. tablets offer at 4s. 6d. spot.

COD-LIVER OIL continues quiet but firm at from 97s. to 100s. per barrel c.i.f. London for finest non-freezing steam-refined Lofoten oil, with spot sellers at 105s.

GALLS.—Chinese are offered at 70s. per cwt. for ordinary shape and at 80s. for plum-shaped on the spot, while to arrive 62s. c.i.f. and 70s. 6d. c.i.f. is quoted respectively. On the spot Persian blue is 65s., green 52s. 6d., and white 50s. per cwt.

GLUCOSE.—American guaranteed water white for July-August delivery is quoted at 27s. 6d. per cwt. duty paid, landed terms.

HEN YOLK is quiet and easier, with spot sellers of prime Chinese (1½ per cent. boric acid) at 115s. net cwt.; near at hand is 102s. 6d. and August-October shipment is 95s. c.i.f. Dried yolk is offered at 6d., sprayed whole egg at 8d., and native dried whole at 6½d. Prime Chinese hen albumen on the spot is 3s. 4d., and August-September shipment is 3s. 1d. per lb. c.i.f.

HONEY.—Sales of Jamaica ex last week's auction include set at from 40s. to 42s. 6d. per cwt.

HYDRASTIS.—Our New York cable notifies an advance to \$3.50 for new crop. Spot values are from 17s. 9d. to 18s. per lb.

MAGNESIUM.—There seems to be a little more life in the demand, and home makers are doing business at about 4s. 9d. per lb. Comparatively cheaper offers, however, are reported from the Continent.

MENTHOL is steady at 24s. per lb. on the spot for Kobayashi-Suzuki, and for August-September shipment 22s. 6d. c.i.f. is quoted.

MERCURY.—It is claimed that some few lots have been secured down to as low as £11 5s. per bottle, which evidently refers to Italian, although sellers as a rule ask £11 10s. Spanish is nominally £11 15s. per bottle. The home trade demand is limited, but stocks are being constantly reduced under continued limited imports.

NUX VOMICA.—The placing of orders for shipment from India is difficult owing to shippers being awkwardly disposed. The value of Cochin is about 30s. per cwt. c.i.f.

SARSAPARILLA.—Since the auction small sales of genuine grey Jamaica are reported at 1s. 11d., and native red Jamaica at 1s. 10d. per lb.

SENEGA.—An advance of 10 c. is recorded in New York to 75 c.; spot values are from 4s. 4d. to 4s. 5d. per lb.

SHELLAC has been steady but quiet throughout, the spot price of usual standard T.N. orange quality being 360s. to 365s. per cwt.; superfine is 440s. to 450s., fine seconds 400s. R. L. 1 435s. A. C. caking 340s. G. A. L. 315s. For August delivery sales have been made at 355s., closing sellers at 352s. 6d.; October has been done at 335s., closing sellers 340s. To arrive, T. N. is quoted for July-August shipment at 345s. c.i.f.

SPIRIT (METHYLATED).—The methylators announce a reduction from August 1 of 4d. per gallon all round in methylated spirit and finish, their prices being as follows:

In One Delivery	Industrial Methylated Spirit		Mineralised Methylated Spirit (Coloured Violet)	
	61 o.p. s. d.	64 o.p. s. d.	61 o.p. s. d.	64 o.p. s. d.
100 gals. and upwards	2 7	2 8	3 6	3 7
30 „ and under 100	2 9	2 10	3 8	3 9
10 „ „ 30	2 11	3 0	3 10	3 11

Methylated resin finish is 2d. per gallon extra and methylated shellac finish 8d. per gallon extra over the prices quoted for industrial methylated spirit.

STARCH PRODUCTS.—Japanese farina continues quiet. No. 1 affeat is quoted at 26s. per cwt. c.i.f. Dutch farina is steady at 29s. per cwt. on the spot. Sellers of pure English rice starch crystals quote £44 per ton

and Continental at £33 10s. American maize starch powder in bags has sellers at 14s. 6d. per cwt. on the spot.

WAX (VEGETABLE).—Japanese is quiet, with spot sellers of 87s. 6d. per cwt., and to arrive at 76s. c.i.f.; fatty grey Carnauba is 92s. 6d., and chalky 87s. 6d. per cwt.

Seeds, Spices, etc.

ARROWROOT is dearer, with sellers of common to good manufacturing St. Vincent at from 4d. to 4½d. per lb.

CASSIA LIGNEA is steady for whole selected at 46s. per cwt., and broken at 34s. Business has been done in broken at 2s. 6d. below recent values.

CHILLIES are quoted at a reduction on late values, and for forward delivery are offered at about 20s. below spot prices.

CLOVES continue quiet, with sellers at 1s 1d per lb. for fair Zanzibar on the spot. To arrive, the value of October-December shipment is 7½d., c.i.f., and business has been done at about this figure. A small lot of Penang arrived and found buyers at full prices.

COCONUT (DESICCATED) has been steady, with sales of fine and medium Ceylon at 37s. per cwt. on the spot. July-August shipment is quoted at 35s. 6d., and August-September at 36s., c.i.f.

CORIANDE SEED.—At auction 238 bags weevilily Bombay sold without reserve at 7s. per cwt.; 250 bags Morocco lying in Liverpool sold at 14s. for fair, rather dark, and 250 bags weevilily sold at 9s. to 9s. 6d.

GINGER of all kinds is selling slowly, and although prices are nominally unchanged, some holders of rough Cochín and Calicut would probably be disposed to accept bids slightly below late values in order to effect sales. Fair washed rough Cochín is quoted at 55s to 57s. 6d., and good bold rough Calicut at 62s. 6d., and ordinary at 55s. At auction 137 bags partly sold, comprising fair brown Calicut at 55s. and wormy washed rough at 45s.

PEPPER has been quiet throughout, with spot sellers of fair black Singapore at 4d. per lb. To arrive, August October and September-November shipment has sellers at 3½d. per lb. c.i.f. Tellicherry to arrive is quoted at 43s. c.i.f., and Aleppy at 41s. 6d., c.i.f. Lampung on the spot is 4½d., fair Tellicherry 4½d., and Aleppy 4½d. White Muntok is dull, with spot sellers at 7½d.; for August-October and September-November shipment 6½d., c.i.f. is quoted. White Singapore has spot sellers at 5½d., and August-October shipment is valued at 6½d., c.i.f. d.w.

PIMENTO is slow and easier with spot sellers at 2d.

SEEDS.—The following are current spot quotations:—Spanish ANISE 85s. per cwt., and Russian 71s. CANARY-SEED, Mazagan, 95s. per quarter; Larache, 75s.; Spanish, 110s.; fine bold Tangier, 105s.; CARAWAY SEED is scarce and dearer at 85s. for Dutch on the spot and 60s. for Morocco. CUMIN SEED is 85s. for Morocco. DILL SEED 25s., FENNELSEED is firmer at 60s. per cwt. FENUGREEK SEED scarce at 14s. 6d. to 15s. per cwt. Manchurian HEMP SEED is now 16s. per cwt. Moroccan LINSEED is unobtainable on the spot. Dutch is 25s. 6d. MUSTARD SEED, 30s. to 35s. per cwt. for English.

Essential Oils

CEYLON citronella oil continues to be of interest, otherwise the general demand for oils is slow. Cajuput is dearer owing to scarcity; American peppermint is firmer. Cassia is cheaper, together with clove, West Indian orange, and Spanish spike. Ceylon cinnamon leaf is easier, and American wormseed has declined in value. With regard to Sicilian oils, some holders are endeavouring to raise their quotations from the low level of a few weeks ago.

ANISE (STAR).—"Red Ship" is unchanged at 2s. 3½d. to 2s. 4d. per lb. on the spot.

BERGAMOT.—For spot 37 to 39 l.a. 14s. 6d. to 15s. per lb. is about the average range, although these figures would be shaded for quantity in some directions. For shipment 14s. c.i.f. and upwards is quoted.

CAJUPUT is scarce and dearer; small lots are being offered at 3s. 9d. per lb. A price of 3s. 4½d. c.i.f. is quoted from the States.

CAMPHOR.—For white essential oil spot prices are unchanged at 80s. per cwt. in 7-cwt. drums, and 90s. in tins and cases. Low offers are coming forward for oil for which a larger range in gravity than usual is suggested.

CANANGA.—Java oil has been selling at 2s. 10½d. per lb. spot, at which there are sellers. Six drums arrived recently in London.

CASSIA.—Spot is easier at 4s. 6d. to 4s. 7½d. per lb., as to quantity, for 80 to 85 c.a.

CEDARWOOD.—Spot is unaltered at 1s. 6d. per lb., in drums, for American.

CINNAMON.—Ceylon leaf is lower at 4½d. per oz. for spot. The shipment price is easier at 3½d. c.i.f.

CITRONELLA.—Ceylon is very firm, and sales of June-July shipment afloat have been made at 2s. Small lots may be obtained at 2s. 3d. c.i.f. Shippers would cable out bids of 1s. 10½d. to 1s. 11d. c.i.f., but there are no offers being made. Java is in small demand at 2s. 10½d. on the spot.

CLOVE.—As shipments of cloves made at the low c.i.f. prices quoted do not reach distillers for about six months, the current spot price of the oil is not greatly affected. English distilled is slightly easier at 7s. 6d. per lb., less 2½ per cent.

GUAIACWOOD is unchanged at 20s. per lb. on the spot.

LEMON.—Spot is 2s. 11d. to 3s. 2d. per lb., according to seller. This can still be shaded in some directions.

LEMONGRASS.—Cochín is steady at 2½d. per oz. spot and 2½d. c.i.f.

MINT.—Japanese dementholised Kobayashi-Suzuki is steady at 5s. 3d. per lb. spot. The price to arrive is easier at 5s. c.i.f.

ORANGE.—Sicilian sweet is quoted at from 12s. to 12s. 6d. per lb. on spot as to seller. West Indian is easier at 10s. 3d. to 10s. 6d. per lb. The spot weakness is due principally to the slow demand. Bitter is offered at 9s.

PEPPERMINT.—American natural tin oil is very firm at from 8s. 6d. to 10s. per lb. for spot. Redistilled on the spot is 11s.

ROSEMARY.—Spanish is unchanged at 1s. 9d. to 2s. per lb. for spot.

SASSAFRAS.—Genuine American is unchanged at 5s. 6d. per lb., but less will be accepted for quantity.

SPEARMINT.—American is unchanged at 15s. per lb. spot.

SPIKE.—Spanish is again easier in drum lots at 3s. 3d. per lb. spot.

WORMSEED.—American is lower at 12s. per lb. on the spot.

Pharmaceutical Chemicals, etc.

ABOUT the only item of importance to record this week is the slightly easier tone in citric and tartaric acid, with a report from Italy to the effect that the two largest makers of these products have amalgamated. This has had the effect of steadying the forward market. Business has been generally light, with spot quotations on about the same level as last week. Bromides are somewhat easier.

ACETANILIDE stands at 1s. 3d. per lb., with one or two offers at slightly less for quantities.

AMMONIUM BENZOATE remains almost idle, with quotations at 4s. per lb.

ASPIRIN is firm and continues in fair request at 2s. 10d. to 3s. per lb.

BARBITONE is irregular on quotation, varying from 9s. 6d. to 11s. per lb.; the market has not livened up.

BENZOIC ACID remains at 1s. 6d. to 1s. 9d. per lb. on a slack market.

BENZONAPHTHOL is now generally at the lower price of 5s. per lb., with still little buying.

BETANAPHTHOL.—Resublimed remains slack, with values nominal at about 2s. 6d. per lb.

BENZALDEHYDE (.03) is now steady at 3s. per lb.

BROMIDES.—A quieter and somewhat easier tone now governs this market: Ammonium, about 11½d.; potassium, crystals and granular, 9½d. to 10d. per lb.; sodium, crystals and granular, 9½d. to 10d. per lb.

CAFFEINE.—Importers offer the pure crystals at from 15s. 3d. to 15s. 6d. per lb. as to quantity.

CALCIUM LACTATE holds quite steady at 2s. 3d. per lb., with a limited business.

CHLORAL HYDRATE.—Duty-paid stands steady at 4s. 9d. per lb.

CITRIC ACID.—The spot position is easier, with much more material available, which is offered at 2s. 4d. per lb.; the demand has of late been much quieter, owing to the cool weather. The forward position is as last reported, and is likely to hold good. Two of the largest makers of citric and tartaric acids in Italy have recently amalgamated.

CREOSOTE.—B.P., on a slow market, is quite steady at 2s. 9d. to 3s. per lb.

CREOSOTE CARBONATE continues irregular on offer, with an average of 10s. per lb.

GUAIACOL CARBONATE is unchanged on a slow market at 5s. per lb. and upwards.

HEXAMINE is now down to 3s. 1d. as the general quotation, with the market now fairly steady.

METHYL SALICYLATE stands firm at 2s. 4d. to 2s. 6d. per lb. on a bright market.

METHYL SULPHONAL is seldom asked for; quoted at about 15s. 6d. per lb.

PARAFORMALDEHYDE in some quarters, is down to 1s. 11d., with other offers at 3s. 3d. per lb.; little doing.

PARALDEHYDE is steadier at 1s. 5d. to 1s. 6d. per lb., and there have been a few inquiries.

PHENACETIN holds at 5s. to 5s. 3d. per lb., but there is very little doing.

PHENAZONE remains at 7s. 3d. per lb., with an occasional limited demand.

PHENOLPHTHALEIN varies from 3s. 6d. to 3s. 9d. per lb., as to quantity.

POTASSIUM PERMANGANATE.—B.P. quality has been rather quieter, and now available at 9d. per lb.

POTASSIUM SULPHOGUAIACOLATE remains very dull, with quotations varying from 6s. 6d. to 8s. per lb.

RESORCIN is unchanged at 7s. per lb., with very little doing.

SALICYLIC ACID.—B.P. is offering at about 1s. 5d. to 1s. 6d. per lb., and there has been some little demand.

SALOL holds at the recently lower price of 1s. 10d. to 2s. per lb.

SODIUM BENZOATE remains quite firm, although not at all active, at 1s. 6d. to 1s. 9d. per lb.

SODIUM DIETHYLBARBITURATE is still neglected, with offers in the region of 17s. 6d. per lb.

SODIUM SALICYLATE continues on the quiet side, but prices are maintained level on the week. Powder, 2s.; crystals, 2s. 2d. per lb.

SULPHONAL remains neglected at 15s. per lb.

TANNIC ACID.—Leviss holds at 3s. 3d. per lb., with not much business about.

TARTARIC ACID has been slow in demand all the week, and spot holders are inclined to shade their quotations of 1s. 5½d. to 1s. 5¼d. There is now a fair amount of material on hand. The forward position is unchanged.

THYMOL, on quotation, is at 22s. per lb., with sales generally at less.

Industrial Chemicals, etc.

London, July 26.

For industrial chemicals a steady tone continues to govern the market, with but very little material change to record. A few products, such as acetic acid, acetone, etc., have been in brisk demand, and are firm at higher prices. On the other hand, some of the industrial materials remain quite neglected, with prices consequently weak.

ACETIC ACID holds very firm, and the market seems to be advancing, especially for glacial, which is now quoted at £65; 80 per cent. pure, £44, and 80 per cent. technical at £39 per ton, in casks and demijohns, ex wharf.

ACETONE has advanced on a good market, with supplies scarce, to about £73 per ton for British Government specification.

AMMONIA (ANHYDROUS) is a shade easier at about 1s. 9d. per lb. for 99.95 per cent.

AMMONIUM CHLORIDE holds at 33s. per cwt. for grey galvanising, but has been in small demand of late.

AMMONIUM SULPHATE for export is firm at £17 per ton, with inquiry good.

ARSENIC.—On spot London is available at about £42 per ton for best white Cornish powdered.

BARIUM CHLORIDE (98 to 100 per cent.) is unaltered on the week, with £22 10s. the nominal figure.

BLEACHING POWDER (35 to 37 per cent.) seems a little steadier this week and is unchanged at £12 to £14 per ton for home trade and export.

BICHROMATES.—English makers have reduced their prices by ¼d. per lb. and now quote as follows: Potassium bichromate crystals, 6¼d. per lb.; sodium bichromate crystals, 5d. per lb., delivered to consumers' works.

BORAX, BORIC ACID AND BORAX GLASS.—Makers' prices are unchanged from last report, with spot prices on the same level.

COPPER-SULPHATE.—While the home trade demand continues limited, quite a fair amount of Continental orders are being reported. The tone is steady, although here and there terms are being shaped in order to secure business. The outlook is fairly satisfactory all things considered. The fact that the tendency of the metal is decidedly strong is not overlooked by makers. Current quotations f.o.b. for casks range from about £27 to £28 per ton.

CREAM OF TARTAR is rather quieter, with spot prices in the region of 113s. to 114s. per cwt. for B.P. The forward offers are unaltered at 103s., less 2½ per cent. c.i.f.

EPSOM SALTS of commercial quality are steady but dull at £6 per ton and upwards.

FORMALDEHYDE holds firm at £69 to £70 per ton, with spot supplies very limited.

GLAUBER'S SALT is now quoted on a better market at about £5 per ton for commercial quality, in bags.

LEAD-PRODUCTS.—There seems to be an expectation of an advance in home makers' terms for white lead and oxide due to the further considerable rise in raw material, although the outlet is not of any special importance.

LITHARGE has been quiet, but holds at recent higher prices of £39 5s. for British flake; Continental material about £35, c.i.f. London.

OXALIC ACID is steadier at 7½d. per lb., but is in small demand.

POTASSIUM CHLORATE is now offered at 4½d. to 4¼d. per lb., with only small demands on the market.

POTASSIUM PRUSSATE stands very firm at 1s. 5¼d. to 1s. 6d. per lb., with not much available.

SAL AMMONIAC.—Dog-tooth crystals are down to 54s. on a quiet market. Medium-sized are easy at 50s., and fine white crystals steady at 33s. per cwt.

SALTCAKE continues dull, with quotations at £4 per ton f.o.b. and upwards.

SODA ASH (53 per cent. alkali) remains unchanged, with the demand still poor. London, £9 10s.; Manchester, £8 10s. per ton. Makers' price to domestic consumers on contract, £7 17s. 6d. per ton.

SODA CRYSTALS from British makers for home trade only, £6 per ton, in bags, carriage paid to destination.

SODIUM ACETATE continues quiet, with prices about the same at £23 to £24 per ton.

SODIUM BICARBONATE on spot and from makers is level on the week; spot is about £11 5s. per ton. Makers' price to domestic consumers on contract at £11 per ton, in bags, delivered free.

SODIUM CHLORATE remains level at 3¼d. to 3½d. per lb. on a slow market.

SODIUM HYPOSULPHITE.—Pea crystals hold at about £19 10s. per ton, in 1-cwt. kegs, and commercial quality at £14 per ton. The Referee's decision in the recent appeal case is not likely to have any effect on this market.

SODIUM NITRATE is steady at £14 10s. to £15 per ton, f.o.r. Liverpool.

SODIUM PRUSSATE is again firmer this week, and little is now offering below 11¼d. to 11½d. per lb., with some holders asking more.

SODIUM SULPHIDE is unchanged at: 60 to 62 per cent., solid, £20 to £20 10s. per ton, in drums; 60 to 65 per cent., concentrated, at £21, in casks. The demand has been poor.

COAL TAR PRODUCTS, ETC.—Pitch has advanced on a firm market. Other products show very little change on the week, with business on the slow side. **ANILINE OIL** and **SALT** are nominal. **PITCH** is now firm at the higher price of 77s. 6d. per ton. **PURE METHYL ALCOHOL** is well maintained on spot at £64 per ton. **CRESYLIC ACID** stands very firm at 2s. 4d. per gallon, naked, at makers' works. **CREOSOTE OIL** is steady in the region of 6d. per gallon, with a fair business about. **CARBOLIC ACID CRYSTALS** stand steady at 5½d. per lb., f.o.b. U.K. **PYRIDINE** remains

unchanged at 5s. 9d. per gallon on a quiet market. HEXAMETHYLENE has been slack and is unchanged at 3s. per gallon. NAPHTHALENE is steady at £17 per ton, with some inquiry on the market. Crude, £4 to £7; crystals, £15; powder, £16; balls, £25; candles, £34; tablets, £34 per ton, packages free.

Fixed Oils, etc.

LINSEED OIL stands very steady at level rates on a firm market. Turpentine continues to ease off, and is likely to do so; the spot position as regards supplies is now easy. Acid oils are scarce and much dearer. Most other markets have had a slow week, with very little change recorded. ACID OILS.—With an acute scarcity of all grades, prices have advanced to very high rates and hold firm: coconut, 37s. 6d.; palm kernel, 37s. 6d.; groundnut, 35s. CASTOR OIL.—Hull prices are steady and unchanged at: Pharmaceutical, 57s.; first pressings, 52s.; second pressings, 50s., ex mills in not less than one-ton lots. COCONUT OIL.—The spot market has been quiet throughout, with prices about level on the week. Deodorised, 47s.; Ceylon, 40s.; and Cochin, 46s. COTTONSEED OIL quiet, with prices at the close: Deodorised, 53s.; common edible, 48s.; soap-making, 45s.; and crude, 42s. GROUNDNUT OIL.—Deodorised is a shade easier at about 55s., and crude Oriental is quoted at 50s. LINSEED OIL.—At about level prices on the week the market closes quite firm for raw, naked, on spot. Since last report a fair business has been done at steady rates. On spot, 44s. 6d.; July, 43s. 10½d.; August, 43s. 3d.; September-December, 39s. 7½d. to 40s. Hull, on spot, 44s.; July, 43s. 6d.; August, 43s.; September-December, 39s. 6d. PALM-KERNEL OIL.—The spot market has been dull, and easier prices are now quoted: Deodorised, 46s.; crude, 39s. 6d. PALM OIL.—There has been an improvement in demand on spot and for forward position. Following rates seem steady: Lagos, 34s. 9d.; softs, 33s. 6d.; hards, 32s. 9d. RAPE OIL.—After a long spell of high prices, the market has eased off considerably, and closes still very quiet: Refined, 51s.; crude, 47s. 6d. SOYA BEAN OIL.—The spot market is quiet, with closing prices about the same: Deodorised, 50s.; and crude Oriental, 40s. TURPENTINE (American).—The process of reverting to normal prices from the high level recently reached continues, and again this week a further good fall is recorded, with the market dull and likely to go still lower for spot and forward. On spot, 97s.; July, 96s.; July-December, 92s.; September-December, 90s. Visible stocks on hand have improved considerably, being now about 15,250 barrels, compared with just over ten thousand of a week ago and 6,000 at the same time last year. LUBRICATING, BURNING, MINERAL OILS, ETC.—There is an easier tendency in shipment prices of lubricating oils, but this has not yet affected spot-prices. Other products are quoted all about the same as last week, with business still very limited. BENZOL continues quite steady and in fair demand at 1s. 11d. per gallon, f.o.r. makers' works, in buyers' packages. BURNING OIL.—Crude, No. 3, 8½d.; No. 2, 8d. per gallon, barrels free. Demand is still light, with quoted prices unchanged. FUEL OIL.—905 to 910 gravity, £5 per ton; 955 gravity, £3 12s. 6d. ex tank. NAPHTHA.—The position is as last reported, with the market steady at 1s. 10d. per gallon. SOLVENT NAPHTHAS.—Both grades are quoted at 2s. per gallon, drums extra, with the market still rather quiet. PARAFFIN WAX AND SCALE.—Wax has been dull, with prices from 2½d. to 3½d. per lb., according to melting-point, ex wharf, in bags. Scale is firm at unchanged rates: On spot, white, 122 to 124 F. 2d. and 1½d. c.i.f.; yellow, 1½d. c.i.f., prompt shipment. PETROLEUM OILS.—No sign of any change in prices. American standard white, 1s. 4½d.; water white, 1s. 5d. per gallon. PETROLEUM JELLIES.—Prices are now much steadier, with the market a little brighter. Snow white, £65; white, B.P., £63; yellow, from £24 to £43; red vet, £19; dark stiff green, £18 10s; barrels free, ex wharf, London. SPECIAL OIL, for Diesels and motors, is steady at 10d. per gallon, barrels free. WHITE OILS continue quiet with values unsteady. Special No. 1, £43; No. 1, £39 10s.; No. 1A half-white, £35, in drums free; No. 2 half-white, £23, in barrels; all ex wharf, London.

LUBRICATING OILS.—Pennsylvanian crude has declined 50 cents, making the price \$3. Oklahoma declined 50 cents, making the price \$1.50. It does not necessarily follow that lubricating oils will be lower, because unquestionably refiners have for some time been discounting this fall. Cables since the fall show no lower prices, excepting a slight weakening tendency in steam refined cylinders. The spot market remains unchanged, but cannot be said to be firm. Pales, £12 10s. to £24 10s.; reds, £15 to £30; dark cylinders, £15 to £35; filtered cylinders, £20 to £37; blacks, £8 to £19, ex wharf, London, less 2½ per cent.

French Chemical Market

Paris, July 22.

TRADING is increasingly difficult in pharmaceutical products at this centre as elsewhere. The depreciation of the German currency has led to a recrudescence of indirect importations of German origin as generally anticipated, offers having come forward through the Sarre region and also through Italy. Domestic makers are thus agitating for protective measures being taken, this being considered imperative in order to safeguard the home industry. In the section of dye products, the consumption is proceeding on a very good scale, and it is better than in other directions. Prices seem well stabilised for the present and in certain directions further advances have taken place. The situation in products for the glass industry is considered quite good on the whole, but the outlet for some of the glass varnishes and paints, although improving, is still poor. At the same time, old stocks are gradually disappearing. Taking the chemical trades as a whole, the run of business is still well under a fair average, but the advances which have taken place in quotations for some weeks past have been mostly sustained, and there seems a tendency towards a further advance in view of the greater firmness of the sterling and dollar exchanges. Below are a few quotations representative of the various products:

Kilo (except where otherwise stated).	Kilo (except where otherwise stated).
Antimony, white oxide pulv.	Nickel oxide 12 to 13 fr.
Antipyrine 1.50 fr.	Phenacetin 550m.
Arsenic, white pulv. 2.10 to 2.15 fr.	Phenolphthalein 40m.
Benzonaphthol (lb.) 6s.	Potass. bromide 8.09 fr.
Bismuth salicylate 57 fr.	Potass. chlor. 2.50 to 3 fr.
Bismuth sub-nitrate 55 fr.	Potass. iodide 90 fr.
Boric acid cryst. 3.15 to 3.30 fr.	Potass. nitrate (per 100 kilos) 150 to 155 fr.
Caffeine (lb.) 15s. to 16s.	Potass. permang. 7 to 8 fr.
Chloral hydrate 12.50 fr.	Pyramidon 1850m.
Chloroform 10 fr.	Quinine sul-phate 3.30 fr.
Citric acid 12 to 13 fr.	Sodium arsen. 3 fr.
Cocaine hydro-chlor. 1,350 fr.	Sodium bicarb. 0.90 fr.
Codeine 1,190 to 1,200 fr.	Sodium borate 2.20 fr.
Creosote (lb.) 3s.	Sodium sulphate 0.60 fr.
Digitalin cryst. (gram) 125 fr.	Sodium benzoate 55m to 60m.
Formic acid, chem. pure 3.50 to 4 fr.	Sodium cadocy-late 130 fr.
Glycerophosphate, lime (lb.) 7s. to 8s.	Sodium methyl-arsenate 6,000 fr.
Glycerin 4.50 fr.	Sodium salicylate 180m.
Guaiacol cryst. 65 fr.	Sodium phos-phate 3 to 3.25 fr.
Iodoform 120 fr.	Salicylic acid 165m.
Magnes. sulphate 1.20 fr.	Sulphuric acid ord. (per 100 kilos) 15 to 17 fr.
Menthol (lb.) 22s.	Sulphuric acid, pure (per 100 kilos) 138 to 146 fr.
Methyl salicylate 2s.	Tartaric acid, pwd. cryst. 7 to 7.50 fr.
Morphine hydro-chlor. 725 fr.	

English Herb Crops.

Mr. Joseph Seymour, Holbeach, writes that PEPPERMINT has done well, and, with sun, will be a good crop. DILL is also good. POPPY is fair, but heads are a good size. LAVENDER has not grown well.

W. J. Bush & Co., Ltd., write that with regard to the prospects of the crops of Mitcham peppermint, chamomile and lavender, they regret that this industry has now become very small. Taking them together, the plantations of peppermint and lavender show very well, and the yields per acre promise to be exceedingly good. A good spell of sunshine is now all that is required. So far as chamomile is concerned, this has practically gone out of cultivation in the Mitcham district.

Stafford Allen & Sons, Ltd., write that the late frosts in the spring have had a considerable effect on most of their medicinal crops, but generally speaking the crops will turn out rather better than anticipated. BELLADONNA will not

be up to the average, the yield per acre being rather low. HENBANE of last year's growth was a good deal cut by the late frosts, but the warm spring and rainfall that came just when it was needed has averaged things up well. FOXGLOVE, ACONITE and VALERIAN are all well up to the average, the late rains having greatly improved prospects. LAVENDER is looking exceedingly well, and we now require a few weeks of sun to ensure a really good crop. PEPPERMINT is another crop that has been greatly benefited by the recent rains. CHAMOMILE is very promising, and this year we should make up largely for the very poor crop we had last year. DILL does not look quite so promising, the recent heavy rains having somewhat damaged the standing crop. Prices for English oil of lavender, peppermint and chamomile should be materially reduced, and it is hoped to see lavender oil selling this season at a reasonable figure.

William Ransom & Son, Ltd., Hitchin, send us the following report of their herb crops:—BELLADONNA.—The summer crop has proved quite satisfactory, and the yield of herb per acre is well up to the average. Hand-picked leaf was gathered in perfect condition, and dried well. The prospects for the autumn crop are good. HENBANE.—The yield of second biennial herb was very light, and last year's prices are being maintained. Some good quality leaf was gathered on our Bedfordshire farm. First biennial henbane, although very tardy in germinating, gives promise of some good leaf. LAVENDER.—The plants look strong and the bloom promises a good crop. Owing to cooler weather and less sunshine the yield of oil is not expected to reach that of last year. *Phoma lavandulae* is still active and will again seriously reduce the yield of bloom per acre. PEPPERMINT.—Owing to the dry spring the crop is backward, rather short. If warm weather follows the recent heavy rains, there should be an average yield of oil. CHAMOMILE.—This crop was badly stunted by the very dry weather in the spring, and it is doubtful whether there will be sufficient herb to justify the expense of cutting. ROSEMARY.—The plants suffered rather severely owing to autumn frosts, but there is some nice new growth and the yield of oil will probably be near last year's figure. The acreage grown is now very small. SQUINTING CUCUMBER.—The plants look very strong and bear a good quantity of fruit. Picking is expected to commence shortly. Latterly the yield of elaterium has been very small, and we cannot yet state what quantity will be available. WHITE POPPIES.—These came into bloom somewhat prematurely, and the capsules are not likely to reach any great size. ACONITE.—We have gathered no herb this season. It is probable that the yield of root will not be heavy.

Holland's Distillery (Essential Oils), Ltd., write that it is rather too soon to give an exact report of the conditions and prospects of the herb crops, but, as far as they are able to judge at the moment, they believe that the crops in general will be extremely small. PEPPERMINT.—It will be understood that the Continental demand for the last two years has been practically nil, France being the only buyers, and then in very small quantities. Germany cannot buy, owing to the exchange, and the price converted into marks is about 300 times dearer than pre-war, making it prohibitive. Naturally, the demand falling off, the acreage put out for the last five or six years has greatly diminished, with the result that a very small percentage of the normal acreage is grown. Until the demand sets in again, we do not see the likelihood of any increase, and it would take two or three years to pick up to normal. Owing to the easier labour conditions and a lower cost of fuel, prices might ease for the new crop; we are inclined to think that prices will rule in the neighbourhood of 70s. to 80s. per lb., depending, of course, on the supply and demand. The peppermint fields are showing plenty of growth. It requires a spell of warm, sunny weather to bring the oil up into the leaf. Provided good harvesting weather is experienced, the yield should be good, but it is peculiarly difficult to estimate with any degree of certainty what the yield will be. LAVENDER.—The acreage under cultivation is now very small, and we do not find that English lavender oil has a market worth considering. The price of the oil became prohibitive, and, with the serious competition of French oils, the users of lavender oil are gradually giving up using the English. The little that is grown now is just sufficient to meet the requirements of those users who still prefer the English oil, whatever the price.

Port of London Charges

THE Port of London Authority has decided to make a further reduction of 20 points in the percentage addition as now levied on dock and warehouse rates, dues and charges, and an equivalent reduction in those rates in which the percentage increase has been merged. The reduction will take effect on and after July 31, and the percentage addition will then range from 65 per cent. to 75 per cent. upon the pre-war tariffs.

Java Cinchona

IN the course of the annual meeting of the Tjiliwoeng Java Plantations, Ltd., held at 5, Fenchurch Street, London, E.C., the chairman (Sir Edward Rosling) stated that the cinchona harvested shows an increase on the previous year of 299,431 lb., and the analysis continued to be extremely satisfactory—namely, 8.14 per cent. quinine sulphate. This is an improvement on the previous year of 57 per cent. During the current season the company do not expect quite so rich bark, as it will be harvested from younger trees, and the price of quinine has fallen; at the same time, there is every reason to expect a satisfactory profit. In order to make the company rather more independent of the weather, a drier has been installed for dealing with the wet bark. Later, Mr. Walter Hilliers said: "As regards cinchona, you will have gathered that this culture has acquired a certain amount of importance in this company. In regard to analysis, it has been an unqualified success. So far the bark grown on this estate has proved quite superior to any other in this respect. It may fluctuate according to the fields coming into bearing, but the fact remains that the cinchona grows exceedingly well. It would be too sanguine to expect that we shall always reap such results from that culture as we did last year, because, with other products, the price of quinine has gone down substantially. It is a culture the marketing of which is entirely different from tea. It requires very careful handling, and we keep in very close touch with those concerned."

Otto of Rose Crop

ACCORDING to the report of Shipkoff & Co., Ltd., Sofia, the rose harvest this year started ten days earlier and ended in the middle of June. The distillation lasted in all 25 days. With the exception of only four rather hot days, there was ideal weather during the whole harvesting season, and, thanks to this fact, the output of the crop is very satisfactory, and the new otto is superior in grade, rich in aroma and by far the best otto since the record 1903 crop. This is due greatly to the better care the rose bushes have had this year, and, above all, to the propitious weather during the harvest. The report goes on to state that: "During the last three weeks, since the rose harvest ended, we have been touring the whole rose district, checking the output of every rose locality, and have found that in all the fine mountain localities the yield is at least 20 per cent. larger and of the choicest possible quality, with hardly any put-up grades. Only in the localities down in the plain, where the soil is clayish, the grade of the new ottos is ordinary, and also all the old ottos, left over from the last two years, are rather of inferior quality. We are also glad to report that there are less put-up grades this year than in any other year since 1912. The total yield of the crop amounts to 65,000 oz., which is fully 20 per cent. more than last year's crop. The flowers commanded the same price, and while the distilling expenses this year are bigger, as the yield of otto from the flowers was much larger, the cost price is about 8-10 per cent. less."

Japanese Opium Regulations

JAPANESE producers of opium have asked the Government to change the present regulations which cover the buying of stocks by the Government. According to the "Yakugyo Shuho" of Tokyo, the opium manufacturers in the Mishima district in Osaka prefecture have presented a petition to the Government asking for an alteration of the regulations under which opium is bought up by the authorities. The petitioners say that with the stoppage of import of opium and morphine on the outbreak of war the authorities encouraged the cultivation of poppy and the manufacture of opium. As the result of strenuous efforts during the last six years opium and morphine have been placed on a self-supplying basis as far as the domestic requirements are concerned, but in order to satisfy the demand in Formosa and Kwantung, the present output of opium must be greatly increased. This, the manufacturers say, however, is impossible so long as the present method of buying is in force. According to the existing regulations no compensation is paid for opium under 3 per cent. morphine, with the consequence that 100 kwamme of opium had to be thrown away last year as it failed to reach the 3 per cent. standard. Under these circumstances, it is not surprising that the production of opium should show a market decrease for the present year. As the decline of percentage is caused by weather conditions, over which the cultivators have no control, the petitioners regard it as only fair for the authorities to pay a reasonable price even for low-testing opium.

DR. LECLERC read a paper recently to the Therapeutical Society of Paris on *Hieracium pilosella*. He had used it in the form of infusions and extracts, and obtained excellent results; it has value as a diuretic.



Letters for this section should be written on one side of the paper only. The writer may adopt an assumed name for purposes of publication, but he must in all cases furnish his real name and address to the Editor.

Free Gifts

SIR,—Some time ago a multiple firm were offering a quantity of margarine for every one pound paid for. Is this absurd custom to spread to the drug trade? Business must be very bad if this is the only way it can be obtained. One firm offers a 1s. 3d. pot of cream for each one bought. Another a cake of soap for every one purchased. A nuisance to the retailer. If the articles cost so little that the makers can afford to do this with all the advertising, etc., how much more sensible it would be to reduce the price at once to the public conformable with a fair profit to the retailer. There would be much more sold, and greater sales would be better for all concerned. These catchy methods savour too much of the drapers' "sales" of which we see so much.

WESTON (12/7).

SIR,—Recently I have been engaged in the profitable transaction of giving away a cake of foreign-made soap with each tablet I sold, and for the life of me I cannot see where I come in. If Mr. Customer uses one cake of soap a month and I give him two cakes for the price of one he has two months' supplies, and I lose the profit on the other cake. Now, as this system of giving away goods which we should otherwise sell seems to be growing, it must receive serious consideration. Apart from the fact that there are one and a-half million of our fellow-countrymen unemployed, and that the giving away of foreign-made goods is to their detriment, is it sound business?

Yours faithfully,

ARTHUR MILLS.

Window-displays

SIR,—“Window Show” (*C. & D.*, July 1, p. 35) calls attention to a factor which means a good deal in the future. If chemists fill their windows with advertisers' displays and “stunts” they will eventually become mere agents. In “Pharmaceutical Notes” a writer states that a full window is one hundred times bigger than a full page in a newspaper, and has very likely a larger circulation than some newspapers. In the main street of a small town of say 20,000 inhabitants fully 4,000 people pass a shop in a single day. In larger towns the proportion is greater. This is what every merchant pays rent for, yet we find chemists giving their “front page” for a few extra packets of an advertiser's article or accepting an extra 2½ to 5 per cent., which is called discount. In reality it is for value received, and it is about time that chemists realised the value of their own premises. What chemists want is 33⅓ per cent. terms—no “stunts”—and best prices for orders of reasonable size compared to the demand.

Yours faithfully,

EYE-WITNESS (4/7).

The Glut of Assistants

SIR,—In view of the number of qualified assistants unable to obtain suitable positions, it seems a great pity that newspapers and journals should publish articles on how to become pharmacists; especially is this the case with regard to notes advising women in the selection of a career. Apart from the inaccuracy of the details which are often given, such advice may lead parents to enter their children for a profession which is already overstocked, and give them an exaggerated idea of the ultimate return. I have seen recently a pamphlet giving information on the subject, and the salaries quoted as obtainable after qualification are from £200 to £350 at institutions, and from £300 to £500 in businesses. I do not know what ladies ask and receive as qualified assistants in retail business, but as a mere male pharmacist of fairly long experience, I have never yet

come across the £500 a year job, nor do I expect to, especially in these days when the artificial inflation, due to the war, is over, and wages are on the downward grade. This sort of exaggeration is much to be deplored and gives the public a distorted view of both salaries and profits in retail pharmacy.

Yours truly,

SALARITE (21/7).

Insurance Prescribing

SIR,—The enclosed was presented at my pharmacy on the inception of the reduced fee for insurance dispensing. In this case, as in many others, the National Insurance Pharmacopœia is not quite enough for an assistant pane medical man recently imported into our locality. Need less to say, he has quite upset the equilibrium in the dispensary where formerly a rigid adherence to the complex formulary which was published to expedite the work was much appreciated.

Tr. nuc. vom.				
Tr. hyoscyam.				
Chlorodyne '85.				
Pot. brom.				
Pot. bicarb.	...	...	aa.	3iv.
Tr. strophanthi	...	...	...	3iss.
Tr. stramonii.				
Tr. lobelia æth.				
Pot. iodi.	...	...	aa.	3iij.
Liq. arsen.	...	...	...	3iss.
Liq. trinitrini	...	...	...	3ss.
Mist. am. carb	...	...	ad.	3viii.

On analysis of this prescription it means that the patient receives the following drugs in each dose:—

Tr. nucis vom.	Tr. stramonii.
Tr. hyoscyam.	Tr. lobelia æth.
Morphine hydrochlor.	Liq. arsenicalis.
Acid hydrocyan. dil.	Liq. tritritini.
Ol. menth. pip.	Am. carb.
Spt. vini rect.	Pot. iodi.
Chloroform.	Ol. lavandulæ.
Ether.	Ol. rosmarinæ.
Sacchar.	Cort. cinnam.
Ext. glyc. liq.	Nucis myristicæ.
Theriacum.	Lig. pterocarpi.
Tr. strophanthi.	Tr. quillaie.
Tr. digitalis.	Pot. bicarb.

Yours,

G. H. T. (24/7).

Retrospect of Fifty Years Ago

Reprinted from “The Chemist and Druggist,” July 15, 1872

Pharmaceutical Education

The difficulties surrounding the subject of province pharmaceutical education, aided by the Pharmaceutical Society, have been apparent to most pharmacists, a have been discussed several times in this journal. The problem may be stated in a very few sentences, and it desirable that it should be so stated, so as to be clear all the trade what is wanted and what is offered. The Pharmaceutical Society had last year a net surplus of near £2,000. Of course, the provinces contribute the chief portion of this amount, and, therefore, their representative claim that this sum ought to be shared among them to in the arduous task of providing efficient pharmaceutical education. There is an almost unanimous agreement th of all things, it is first of all important to maintain central institution in the Metropolis, which shall thoroughly efficient, and creditable to the united efforts British pharmacy. Such an institution we have. For special appliances and arrangements adapted to the teach of the various branches of pharmacy, it is unsurpassed in world. The most earnest advocate of aid from the par Society to the provinces will scarcely urge that this cent institution should be in the least degree beggared, if he consider the subject. It happens to be in London, certain but it is useful to the whole kingdom, and pharmacists Land's End and Aberdeen are more or less influenced the central educational power in Bloomsbury.

A FIRE broke out in the chemical laboratory of famous Ecole Normale (rue d'Ulm, 47) Paris recently, rapidly got under, but the phosphorous fumes compelled the firemen to don their gas helmets.

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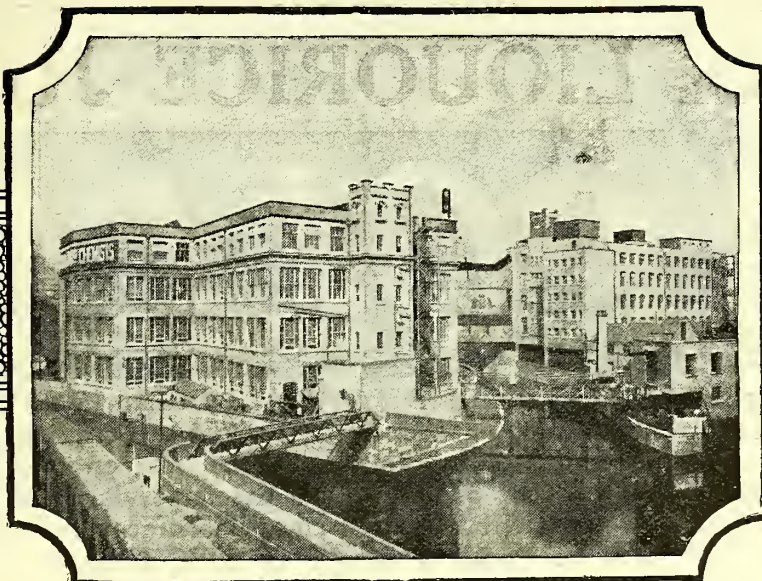
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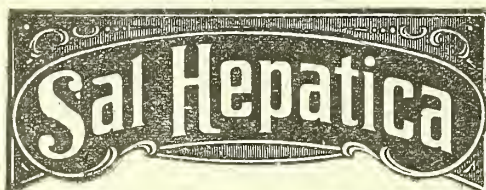
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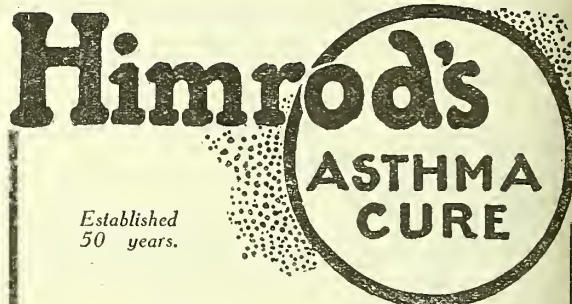
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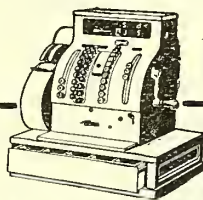
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Osmos

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Aperient Water

Vinum Xericum

BUTTS.	HOGSHEADS.	QR. CASKS.
108 galls.	54 galls.	27 galls.

Grade A. STRENGTH 16.5°-17° Abs. Alc.

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James V. Oldham

19 St. Dunstan's Hill, London, E.C.3.

Telephone: Avenue 3013.

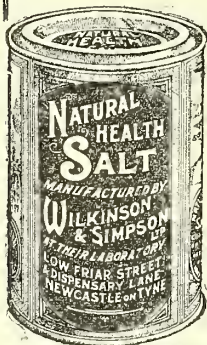
A Health Salt that sells for 8d. and 1/2

Small Tin.

Large Tin.

NATURAL HEALTH SALT

The Original Health Salt of the World



Summer-time sales are always high with "Natural"—it is in great demand as an effervescent thirst quencher, and stands alone as a health-giving saline.

Consistent advertising is creating sales for you. Stock "Natural"—show it in your windows—on your counter. Take advantage of this good trade. The profit is worth while.

Write for full particulars and terms—

WILKINSON & SIMPSON, Ltd.

Manufacturing Chemists,
NEWCASTLE-ON-TYNE.

RUBINAT-LLORACH

NATURAL APERIENT WATER

SPRINGS: SPANISH PYRENEES.

MEDICAL propaganda is now we'll under way and is meeting with MARKED SUCCESS.

WATCH the weeklies and monthlies for advertisements appealing to the RIGHT PEOPLE.

DON'T forget that the BONUS TERMS HAVE COME TO STAY and will not be cancelled when you become a regular buyer.

DON'T forget that PROFITS DARE LARGER and that CARRIAGE IS PAID even on small quantities.

If you have not already arranged to stock this FIRST-CLASS LINE write at once for particulars to:

EVERETT & COMPANY,
Natural Mineral Waters Branch,
5 LLOYD'S AVENUE, LONDON, E.C.3.

ATKINSON & BARKER'S INFANTS' PRESERVATIVE

THE BEST AND SAFEST INFANTS'
MEDICINE OF OVER 120 YEARS' STANDING.

Prices and Terms on application to R. BARKER & SON, Ltd.
13 Wesley St., C.-on-M., MANCHESTER.

**DOES
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CONTAIN
any
SCHEDULED
POISON.**

WINCARNIS

Sells readily ALL the time

COLEMAN & CO., Wincarnis Works, NORWICH.

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TO CHEMISTS
WITHOUT LICENCES**

It has been established by law that Registered Chemists may sell "Wincarnis with Quinine" without a licence.

EVERY CHEMIST AND DRUGGIST
SHOULD SELL THE CELEBRATED

D. FÈVRE'S SELTZOGENE

The BEST and
MOST ECONOMICAL

apparatus for home-made aerated water.

THE D. FÈVRE SELTZOGENE

is the most perfect article of its kind yet produced. Every detail has been carefully studied and improved by long experience. The apparatus is entirely covered with non-corrosive wire. Every part is interchangeable. Our screw top (of pure block tin, free from lead, and nickel plated) represents the best and most efficient system of closing.

Manufactured exclusively by

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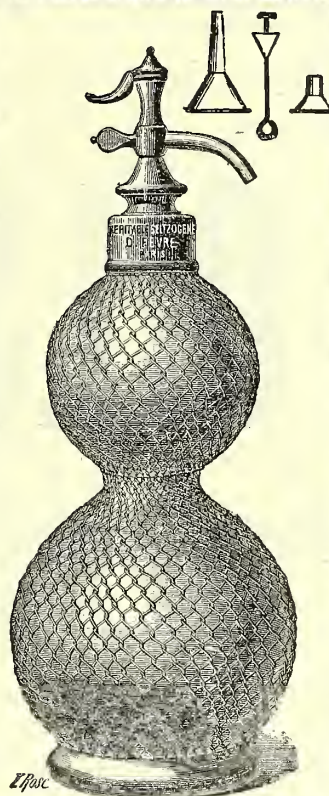
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Export Agents: GLADSTON & CO., 24 rue des Petits-Hôtels, Paris.

And all leading Druggists' Sundriesmen.

None genuine unless bearing the words "Veritable Seltzogene D. Fèvre" and the Trade Mark Signature.

D. Fèvre



DR. HALE'S
VIN-SANGUIS
WINE FOR THE BLOOD

Fountain of Health

If you have a
Wine License we
will pay the fee.

If not, get one,
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You agree to display
"Vin Sanguis" always.
You give us an
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IMPORTANT TO CHEMISTS
WITHOUT LICENCES.

LIME JUICE CORDIAL

Finest Quality at 16/6 per doz.

PURE LEMON SQUASH

at 16/6 per doz.

UNFERMENTED

Sacramental Wine

Special Quality at 25/- per doz.

QUININE WINE, B.P.

Bottles 21/- doz.; 1/2-bottles 11/6 doz.

Carriage Paid on 3 dozen orders.

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PENDLETON - MANCHESTER.

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Telegrams :
"Champagne Manchester."

We invite your enquiries
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including

**MINERAL & LUBRICATING
OILS OF ALL KINDS.**

ARACHIS NUT OIL
CASTOR OIL
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COD LIVER OIL
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PARAFFIN LIQUIDUM
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SOYA BEAN OIL
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WHITE OILS

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CONTINENTAL & ENGLISH B.P.
TECHNICAL.
EDIBLE REFINED.
FINEST NORWEGIAN NON-
FREEZING.
GENUINE CATTLE QUALITY.
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B.P. INDUSTRIAL.
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TECHNICAL RED & GREEN.
ALL GRADES, FRENCH &
AMERICAN.
FINEST PALE COLOURED.
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GENUINE AMERICAN SPIRITS
AND SUBSTITUTES.
TECHNICAL QUALITIES.

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Raw
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Refined



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Enquiries solicited for all Grades of Oil.

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PROTECTIVE OVERALL CLOTHING FOR CHEMISTS & DRUGGISTS



**KHAKI DRILL
WAREHOUSE COATS,**

7/11, 10/6, 12/6, 14/6.

WHITE DRILL JACKETS,
6/6, 7/6, 10/6.

WHITE DRILL LABORATORY COATS,
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BLACK DRILL WAREHOUSE COATS,
18/6.

Postage on Coats 9d. each.

POST ORDERS Promptly and Carefully Executed.
We pay postage on all orders over 20/-.
Samples and special quotations for quantities
sent on request.

STOCK SIZES, 34 to 44 Chest. When
writing us measure Chest over waistcoat.

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Write us for Copy of New Illustrated Style Booklet.

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HIGHEST VISCOSITIES.

"JASMINE BRAND" PETROLEUM JELLIES B.P.

White and Yellow Tasteless and Odourless.
Natural Filtered and Opaque.

"JASMINE BRAND" WHITE OILS Chem. Pure, Water-White, Tasteless, Odourless.

FOR MANUFACTURING PURPOSES.

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*All Our Products are Guaranteed of Finest
Qualities and Our Prices are Competitive.*

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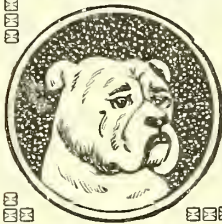
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Our New 1922 Price List
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Bandages for Varicose Veins

Rubberless, washable, cheap, hygienic and put up ready in neatly labelled packages. Recommended by doctors and nurses everywhere.

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Corrects bunions, straightens crooked toes by mechanical action. Made of finest soft surgical rubber it gently restores the joint to its normal position. Three sizes, price 2s. each.



Dr. Scholl's
Foot Comfort Appliances

Dr. Scholl's Toe-Flex give immediate relief and permanent correction to every type of foot trouble. By linking up, through strong window displays, with "Scholl" National Advertising you will obtain your share of the tremendous demand we create, thereby greatly increasing your profits.

Write to-day for full particulars.

The SCHOLL MFG. CO., Ltd., 1-4 Giltspur St., London. E.C. 1

"WATTS"
Blades are being forcefully advertised in the popular press in this way

Are you prepared with an adequate stock to meet the increasing demand?

12 PERFECT BLADES
IN EVERY
DOZEN.



For Gillette Type Holders.
3/6 Per Doz.
post free to any part of the world

They have a super keenness that ensures perfect service and makes them different from and better than all others. If your dealer doesn't stock them write direct:

JOHN WATTS,
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Established over 150 years.
London: 24 Redcross Street, E.C. 1.

Testimonials as to the superiority of the "WATTS" Blade are being constantly received from all parts of the world.

Chemists may confidently recommend them to all seeking a superior Blade at a reasonable price.

John Watts

For GUARANTEED
ATOMIZERS and SPRAYS
THE DEVILBISS Co., LIMITED
WEST DRAYTON, MIDDLESEX.



Rubber Corks
ALL SIZES & FOR ALL PURPOSES
ONE HOLE TWO HOLE OR SOLID
THE ALTRINCHAM RUBBER COMPANY
MOSSBURN BUILDINGS, ALTRINCHAM.



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In Light qualities for Summer wear, or Stout for hard wear.

Old Style
With Seams"Surco"
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Price List and Measurement Forms on Application.

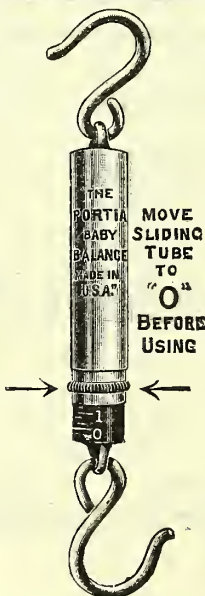
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complete
with
Netted
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Write
for
Prices.



Always
Accurate.



The
BEST
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Handiest
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Baby's
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Obtainable from all Wholesalers.

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184/190 Goswell Road, LONDON, E.C.1.

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THE ORIGINAL—

Boracic Socks

Fixed Selling Price, 6d. per pair.
Cost, 4/- per dozen.
Six dozen lots, 46/- per gross.

Distributing Agents :

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Sangers, 42a Hampstead Rd., London, N.W. 1.

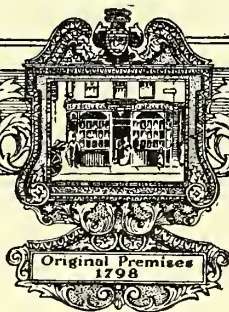
Scotland—

Munro, M'Laren & Sutherland,
17 Cadogan Street, Glasgow.

For Sample Pair (state size) send Postcard to—

The Curasol Sock Co.

19/20 Garlick Hill - - LONDON, E.C.4.



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These Outfits contain sufficient dressings, etc., for the accouchement.

THE "MARYLEBONE" OUTFITS are always "GOOD STOCK" as the contents cannot deteriorate or become soiled, and sterility is maintained.

Retail Prices :

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No. 2 Outfit

63/-

Trade Terms and descriptive literature on application.

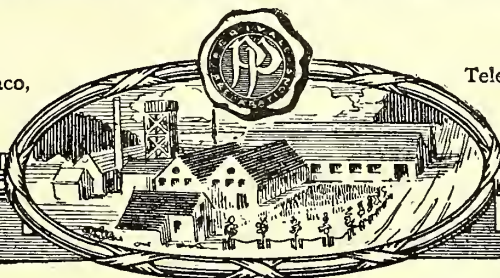
IT WILL PAY the Pharmacist to hold stocks of these outfits. A large demand is being created by means of an intensive Press campaign.

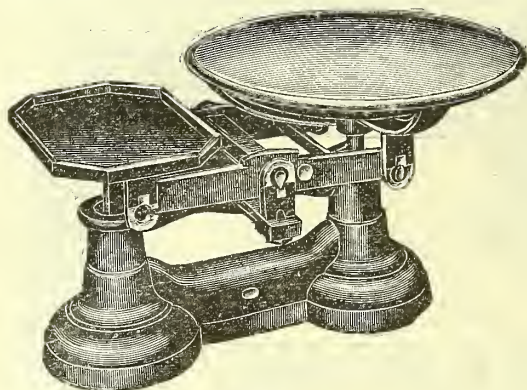
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You cannot weigh Service on a pair of scales, nor measure it in a minim glass.

Yet what weighs with the Retailer is the amount of Service he receives from his Sundries House, and the measure of the Wholesaler's Success—financial and otherwise—is the quality of the Service he renders to the Retailer.

May, Roberts have gradually built up an organisation for the rapid and effective distribution of Proprietary Goods, Sundries, Bulk and Packed Drugs and Toilet Adjuncts, which they claim affords the Retail Pharmacist the maximum of Service in return for the minimum of worry.

We are always at your service to obtain any special requirements wanted "by return." A special "Wants" department, with a young army of messengers, is maintained to uphold this important feature of the "May, Roberts' Service."

May, Roberts & Co., Ltd.

7/13 Clerkenwell Road, London, E.C.1.

And at

Dublin, Liverpool and Plymouth.





THE CHEMIST AND DRUGGIST

SUPPLEMENT

2 CANNON ST.
LONDON E.C.4

JULY 29, 1922

This Supplement is inserted in every copy of The Chemist & Druggist.

THE SUPPLY OF SUPPLEMENTS.

The clerical work in connection with the posting of spare copies of the Coloured Supplement week by week has increased to such an extent that we have been compelled to reorganise our system of distribution. Our readers will please note, therefore, that, in future, instructions can be accepted for not more than six successive issues of the Supplement at a time, and that in every case

Addressed Wrappers Stamped One Penny

must be sent. Loose stamps will not be accepted.

EARLIER CLOSING FOR PRESS. Will advertisers please note that until further notice it will be necessary that Advertisements

for the Supplement must be sent not later than the **FIRST POST THURSDAY MORNING.**

CHEMISTS' TRANSFERS.

Messrs. ORRIDGE & CO., 56 Ludgate Hill, E.C.

Telephone No.: City 2283.

May be consulted at their Offices on matters of **SALE, PURCHASE and VALUATION.**

EASTERN SUBURB.—Good-class Retail and Dispensing Business. No N.H.I.; established many years; returns net profit, including sublet rent £700 per annum; rented shop, handsomely fitted in mahogany and well held on Lease; further details on application.

LONDON, S.W. (Main Road).—Good-class Retail and Dispensing Business in prominent position; returns £3,500 per annum at good prices, lock-up shop, held on Lease; price £2,750.

WYFAIR.—Old-established Business and Dispensing, with net profit about £450 per annum; lease 30 years; net rental £600; terms, valuation of stock and fixtures from £2,000 and premium for lease.

SOUTH LONDON.—Cash Retail Business, with N.H.I. Dispensing; returns last year £3,100; gross profit 45 per cent.; rented shop, well stocked; rent £60; terms, valuation of stock and fixtures and sum for goodwill to be agreed, or lump sum entertained.

WIMBORNE.—Old-established Family Retail and Dispensing Business, capable of expansion in the hands of an energetic man; returns, present rate, about £30 weekly; gross profit 10 per cent.; single-fronted shop; stock and fixtures estimated for at £650; held on Lease; price £950, or near offer entertained.

WEST END (Death Vacancy).—Must be sold, Retail and Dispensing Business; modern, well-fitted shop, fully stocked; leasehold; new lease of 21 years will be granted; returns £6,000; profits above the average; to effect a speedy sale, no reasonable offer refused.

WOTLAND.—Wholesale Business, established upwards of 20 years; a number of Proprietaries are included, which are by most chemists; returns between £4,000 and £5,000; stock and plant at valuation, and sum for goodwill to be agreed.

8.—HOME COUNTY.—Light Retail and Dispensing Business, established many years; returns between £3,000 and £3,500 per annum, at good prices; single-fronted shop, well fitted and stocked; good living accommodation; held on lease, at moderate rental; price to be arranged.

9.—SOUTH COAST.—Cash Drug Stores, with Stationery, Tobacco and Confectionery; returns about £70 weekly, at fair prices; there are two shops, both of which are single-fronted, with small living accommodation over; vendor wishes to dispose of the Freehold and is open to consider a reasonable offer for the whole, about £2,000 required for the businesses.

10.—BIRMINGHAM.—Bottle Manufacturing and Perfume Business, at present conducted by a woman; 6 large workrooms; rent £39 per annum; price £550; good opening for energetic man.

11.—SOUTH WALES.—Cash Retail Business, with Wines and Spirits; present hands 50 years; returns average £3,634 per annum, at fair prices; large house, private entrance; garden, held on long lease; no opposition; price £2,500.

12.—EASTERN COUNTIES.—General Retail Business, including well-known Agricultural Proprietary; returns, present rate, £2,500 per annum; net profit £600; double-fronted shop, well fitted and stocked; large house; long lease; further details on application.

13.—WEST OF ENGLAND.—Old-established Business, Retail, Dispensing and Optical; returns, last year, exceeded £2,500; net profit between £500 and £600; property must be purchased; part payment entertained.

14.—NORFOLK.—Unopposed Country Retail Business, very old-established; returns, present rate, £1,800 per annum, at good prices; good living accommodation in excellent repair, large garden; new lease will be granted, or property may be purchased; price £1,200, or near offer entertained.

VALUATIONS FOR STOCKTAKING.

Messrs. O. & Co. desire to emphasize the necessity of a periodical Statement of Account by which means alone Profit, value of Business, &c., can be determined. Involving as this does the labour of Stocktaking and Valuation, it is often omitted and eventually becomes the cause of confusion and loss.

Messrs. O. & Co. are prepared to undertake these essential duties and make **Special Terms** for such services.

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Valuers and Transfer Agents,

35 Jewry Street, Fenchurch Street, E.C.3.

Telephone—1809 CENTRAL.

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2. SURREY (few miles out).—Good-class Suburban Business, entirely under manager; returns £3,000, and increasing; splendid main road position; convenient house and garden; handsome pharmacy, fully stocked; price £2,150.

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Messrs. Berdoe & Fish are anxiously seeking sound concerns on behalf of cash clients from £800 to £3,000. Intending vendors are cordially invited to correspond.

STOCKTAKING VALUATIONS.

We are now booking dates for August and September, and invite early applications to save disappointment. Terms sent on application.

ESTABLISHED 1870.

The Association of Mnfg. Chemists

— LIMITED —

Head Offices—26-28 Kimberley House,
Holborn Viaduct, London, E.C.1.

(and at 2 Bixteth Street, Liverpool.)

PARKIN S. BOOTH, Accountant and Valuer.

PHONE: CITY 6942-43.

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2.—WOOLWICH.—Drug and Herbal Stores; in busy thoroughfare; premises held on weekly tenancy; lease might be granted; premises consist of shop, parlour, and large room above; scullery and shed at rear; long garden; business established 10 years; under qualified proprietorship business could be greatly improved; good scope for Dentistry, Optics, and N.H.I.; price about £800; fullest particulars on application.

3.—Small Wholesale Manufacturing Chemist Business for disposal; owners of several registered trade-marks.

4.—HOLBORN CIRCUS, E.C. (CLOSE).—Fine modern Manufacturing Premises to be Let, comprising basement, ground and three floors over, floor area about 5,000 sq. ft., divided into excellent offices, showrooms, workshops, storage, etc., fireproof floors, hydraulic lift, central heating, electric light, ample lavatory accommodation; new condition; exceptionally well lighted; immediate possession; low rent; reasonable price for lease of 55 years.

5.—Proprietary Article for Sale; business has good connection among Chemists; full particulars on application.

6.—PORTSMOUTH.—Established over 20 years; Retail Pharmacy; well fitted and stocked premises, held on lease, 6 years to run, with 14 years option; rent, £40; dwelling accommodation; fullest particulars on application.

Stocktaking and Valuations for all purposes undertaken upon Reasonable Terms.

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P. C. Baker, Ph.C., M.P.S. W. Rooke Roberts, M.P.S., F.S.M.C.

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CHEMISTS' VALUERS, TRANSFER AGENTS,
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ESTABLISHED OVER HALF A CENTURY.

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Chemists' Valuer & Accountant

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SERVICE

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Chemists' Valuers and Transfer Agents,
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Sound Businesses required at once Devon,
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For 50 words or less; 6d. for every additional 10 words
or less, prepaid.

ADVERTISER may if preferred have replies addressed to this
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AGENT wanted in every county in the United Kingdom to
carry quick and easy selling side line; fits the waistcoat
trade; good commission; only men with connections need apply.
Sole Novelties, 70a, Basinghall Street, E.C.2.

AGENT (commission), with sound and well-established con-
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Wiltshire (excluding Liverpool); must not only be able to
present business, but also to increase. Vacancies in several
districts, owing to reorganisation. State, in confidence,
particulars in first letter. "Toilet," 9/272, Office of this
Paper.

CHEMIST, with 18 years' experience in the Drug Trade of
the Guianas and West Indies, wants first-class Agencies
representation in these colonies, the whole ground to be
done annually; first-class references; fullest inquiries solicited.
West Indies, 11/36, Office of this Paper.

CONNECTION wanted with first-class firm to introduce an
excellent Norwegian Cod-liver Oil and Egg Emulsion on
British market (England, Scotland and Ireland). Big sale
abroad. Best recommendations from Norwegian physicians.
to Bjarne L. Gundersen, Egersund, Norway.

MILLAN, Buenos Aires, representing Southalls' for
Surgical Dressings and Drugs, require one other first-class
agency only. Apply, S. B. & B., Ltd., Charnford Mills, Bir-
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PROPRIETOR of a well-known Dispensing Business in Bir-
mingham wishes to take up an Agency for a Wholesale or
facturing house covering Midland counties. Drugs, photo-
graphic materials, fine chemicals, tablets, packed goods, per-
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a week. Plenty of room for carrying stocks. Staff includes
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EDISTRICT Agents wanted, London and Provincial; 15 per
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and Kid "Bottle Capping Solution, replacing, and exactly
like white kid and other "tie down" materials (a clear
less solution which dries white and tough); commission
orders from ground allocated; trade enquiries solicited.
Unit Manufacturing Co., 171a, Landells Road, East Dulwich,
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AVELLER, resident Bournemouth, desires additional
Agency; highest references. 11/34, Office of this Paper.

ANTED, by chemist with two travellers covering Yorks.
and Lancs. Agency for Packed Extract of Malt, Malt and
Cod-Liver Oil Emulsion, Olive Oil. Apply Progressive, 14/28,
Office of this Paper.

WHOLESALE trade only.—Agent, with London office, calling
upon all leading Manufacturing Chemists and Wholesale
Firms and Surgical houses throughout the whole of Eng-
land and Scotland, including London, requires additional Agency
commission and part expenses. "Sales," 11/16, Office of this
Paper.

Desire particularly to draw the attention of Colonial and
Foreign Subscribers to the fact that in cases where they
require partners, agents or assistants, or wish to sell their
businesses, an Advertisement in this Supplement, placed in
every copy of "The Chemist and Druggist," should be the
most direct means of helping them to attain their object. The
advertisers for such announcements are given under the appropriate
headings in the Supplement. Instructions and remittances
are sent to us direct or through the advertisers' re-
spondents in this country.

BUSINESSES WANTED.

6s. for 50 words or less; 6d. for every additional 10 words
or less, prepaid.

ADVERTISER requires genuine Drug Store or Drug Store
and Stationery combined; North of England preferred;
living accommodation an advantage; position in business
thoroughfare; or Partnership entertained with view to succe-
sion. All replies treated in strictest confidence. 14/20, Office
of this Paper.

COUNTRY, health resort, or outer suburban district Business
wanted to purchase by advertiser, who recently gave up
business, and is disengaged, with ready money; returns not
less than £1,500 to £2,000 annually, or more; good-class
trade. Replies treated confidentially. Mr. Keeble, Balcones,
Liss, Hampshire.

GENUINE Business wanted, turnover £2,500 to £3,000, in
London area or Home Counties; must bear strict inves-
tigation. Full particulars, in confidence, to "Pharmist," 106
Selwyn Avenue, Highams Park, E.4.

PHARMACIST requires Business with living accommodation
over; preferably in North of England; available capital
£700 to £800. "Immediate," 6/34, Office of this Paper.

PHARMACIST requires a Business in Midlands or the South
(not north of Birmingham); neglected one not objected to
if in good position and thoroughfare; house necessary. Cash
£850. Reply, with full particulars, to "Pharmacist," 16 St.
Michael's Mount, Northampton.

PHARMACIST requires good Chemist's Business in market
town or seaside resort; North of England preferred. Capital
available £1,250. Full particulars to "Pharmacist," 14/11,
Office of this Paper.

BUSINESSES FOR DISPOSAL.

BELFAST.—Old-established Chemist's Business and property
as a going concern on main road; quiet district; little
opposition; with good turnover, which is capable of increase by
Optics and Photography; exceptional opportunity for man with
capital; open to full investigation; principals only. Reply, 9/33,
Office of this Paper.

BIRMINGHAM.—Old-established Chemist's Business, now
carried on as drug store, and has been much neglected.
Situated in a densely-populated district; splendid opening for
N.H.I. work. Premises may be bought, or a weekly tenancy
arranged of lock-up shop. Price for quick sale, £250. Apply
13/22, Office of this Paper.

BLACKBURN DISTRICT.—Genuine Chemist's Business for
sale, in populous district; capable of rapid expansion with
active management; house with 5 rooms, bath and w.c., and
shop with good dry cellar; lease 999 years; elaborately fitted
and well stocked; price, all, £1,300. Apply, 9/4, Office of this
Paper.

BLACKPOOL, in best position.—First-class Chemist's Business;
established 15 years; modern fittings and sound stock;
Kodak agency; price £3,000 for quick sale, and long lease;
retiring from retail. Address, W. D., 13 Portland Street, South-
port.

ESSEX COAST.—Favourite resort. Medium-class ready-money
Business; good prescribing, photographic, small N.H.I.;
returns £1,500 at good prices; living accommodation; low rent;
valuable 21 years' lease; price £2,000. Freehold can be pur-
chased at £1,000. "Farrant," 12/12, Office of this Paper.

LONDON, N.W.—Old-established, progressive light Retail and
Dispensing Business in good-class residential neighbourhood.
Well-stocked shop; all fittings solid Spanish mahogany. Gross
returns last year £3,115, at good prices; good living accommo-
dation above. Valuable lease at exceptionally low rental. For
further particulars, apply 13/19, Office of this Paper.

LONDON, W.—Light Retail and Photographic Business in
busy thoroughfare; returns £3,500, at good profits; lock-
up shop, rent £40 on Lease; price, goodwill and fixtures,
£1,200; stock at current value, about £900; part purchase-money
could remain; banker's reference essential; no agents. 12/30,
Office of this Paper.

MANCHESTER DISTRICT.—High-class Chemist's Business,
together with property, suitable for multiple firm or private
person with capital; well stocked beautifully fitted; good turn-
over under management; could be doubled. Particulars, apply
R. G. C., 114 Clarendon Street, Manchester.

MIDLANDS.—Ready-money Business; little N.H.I.; Kodak agency. Returns last two years over £2,500. Single-fronted shop; electric light; good stock; with living accommodation. Premises may be purchased or had on lease. Price £1,200, or with premises £1,800; cash or by arrangement. 13/36, Office of this Paper.

N.E. COAST.—Turnover present rate £3,700; price £2,200; no offers; or would accept £1,100 down and half profit after salary deduction to right man until balance paid; references essential. 11/12, Office of this Paper.

SOUTH LANCASHIRE TOWN.—Good General Light Retail in main street, with Optics and Wine licence; normal turnover, £2,500 to £3,000, but somewhat lower under present abnormal conditions of trade; rental, £70 of house and shop under a lease to be granted by owner. Ingoing about £1,600 or so on basis of goodwill, and stock and fittings at valuation. Apply, Thos. Tomlinson & Son, Chemists' Valuers, 45A Market Street, Manchester.

SOUTH LONDON.—Drug Store; shop and parlour; established several years; market terrace, main road, working-class district; trade average £20; could be considerably increased with photographic and clubs; low rent; £165, all at. Really good thing for smart single man. Write, P. C. B., 47/4, Office of this Paper.

COUNTRY Wholesale Business, connection with long reputation; about £1,000 required for incoming valuation and costs; purchaser should be able to drive car; preferably acquainted with packed goods; inquiries must be bona-fide with bank or other references. "Yorkshire," 11/33, Office of this Paper.

DRUG Stores for Sale, East London; best position; nicely arranged, splendid fixtures, well stocked, takings about £20 weekly; established many years as chemist's; scope to do double under qualified management; sound reason for selling; price £850. Particulars bona fide buyers, "P. C. B.," 46/33, Office of this Paper.

FOR immediate sale; Trustee's interest in the business of the Keene Co., manufacturers of the following well-known proprietary lines: "Keene's One Night Corn Cure," "Razorine." Full particulars on application to Parkin S. Booth, 28, Kimberley House, Holborn Viaduct, London, E.C.

FOR Sale, Drug Stores in West Riding; no opposition; doing £18 to £25 per week; under qualified management could do considerably more; price £550. Apply 9/270, Office of this Paper.

GENUINE good-class Dispensing and Family Business in residential London suburb; good position; well-fitted and well-stocked shop; scope for development; lease 12 years to run; net profit 1921, £700; accept reasonable offer. Apply 9/269, Office of this Paper.

MODERN Toilet Manufacturing Business for disposal (Limited Company), including registered trade marks, printing blocks, stock, fixtures, and office furniture. Goods already stocked in leading London Chemists and Stores. Exceptional opportunity for anyone with energy and capital. No liabilities; all at £400. Well fitted premises, two minutes' from Kingsway. Apply, "T.," P.C.B., 45/23, Office of this Paper.

UP-TO-DATE modern Drug Store, no near opposition, situate in well known, all year round health resort; very much neglected owing to ill health of proprietor; takings average over £30 per week; room for immense increase under qualified control; shop splendidly fitted and well stocked; price £975. "Station," 13/12, Office of this Paper.

PARTNERSHIPS.

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

CASH available up to £1,000.—Experienced Pharmacist, also in Optics, Dentistry and Photographic; energetic, middle-aged; for partnership or management with view to succession, or good position in Limited Liability Co. 11/9, Office of this Paper.

LADY Pharmacist would like to come to terms as Working Partner in well-established business; London or suburbs preferred.—P.C.B., 45/27, Office of this Paper.

M.P.S., F.S.M.C.; 36; returning England September or October, desires partnership or management with view succession; might buy branch; some cash ready, more available later; references; seaside or country preferred. 8/262, Office of this Paper.

QUALIFIED Partner required (aged 25 to 35, married, preferred but not essential) in an established good-class business, and a similar new business to be opened in September where there are excellent prospects. Intended partner must possess thoroughly up-to-date business methods, and have varied experience. Capital required for partnership, £25, but advertiser is willing to accommodate a really good man by arranging an agreed sum down and suitable terms. As is a sound and honourable proposition all applications must bear the strictest investigation. Apply (in first instance), give fullest particulars in confidence; photo if possible; to G. Ward, Solicitor, 1, St. Sepulchre Gate, Doncaster.

SITUATIONS OPEN.

[HOME.]

RETAIL.

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to Office, and forwarded on payment of an additional charge of 1s.

ACCRINGTON.—Branch Manager required for small business capable of considerable expansion; qualification and knowledge of Photography essential; progressive salary; if married small living accommodation available; must be thorough, dependable and not afraid of work; full particulars. Thorn 35, Blackburn Road.

BECKENHAM, KENT.—Wanted, Lady Assistant; must be reliable dispenser. Apply, giving full particulars as to age, height, experience, salary required (outdoors), and send photo if possible. E. R. Jones.

BIRKENHEAD.—Required, immediately, reliable unequalled Assistant (young and energetic), for quick cash Retail Dispensing, and Photographic Business. State full particulars and salary required (outdoors); if possible send photo. Cook Chemist, Birkenhead.

CARDIFF.—Duck & Son have a vacancy for a Junior; recommended. State all usual particulars.

CHESTER ROYAL INFIRMARY (201 beds).—Dispensing Assistant required; must be qualified Pharmacist; institutional experience desirable; salary £250 per annum. Applications, state age and accompanied by copies of testimonials, to be sent later than Friday, 11th August, to the Secretary, from whom particulars may be obtained.

GRIMSBY.—Wanted, steady, reliable qualified Chemist and manager of branch; good-class Retail, with Photography and Dispensing. State full particulars, experience, references and salary required, to Barkers, Chemists, Grimsby.

LANCS.—Wanted, unqualified Assistant, N.H.I., Photography &c.; state age, salary, references and usual particulars; photo; outdoors. "Lanc.," 12/15, Office of this Paper.

LONDON, N.22.—Assistant (male) wanted; competent Counterman and Dispenser, with knowledge of photography, and experience in window-dressing. Apply, state full particulars of experience, age, height, and salary required (outdoors), with photo and references, to Geo. Daniel, 272 Islington Road, Wood Green.

LONDON, N.E.—Assistant, qualified, or one thoroughly experienced in dispensing (N.H.I.) counter, window and general work; temporary, with probable permanency. State particulars and salary (which must be moderate). If no reply in 7 days, regretfully declined. 14/36, Office of this Paper.

MANCHESTER.—Wanted, immediately, young unequalled Male Assistant, with thorough knowledge of N.H.I. Counter work. Applicants must give full particulars as to experience, references, salary, and when at liberty. 11/6, Office of this Paper.

MANCHESTER UNION.—Wanted at the Crumpsall Infirmary, Crumpsall, near Manchester, a qualified Dispenser of medicines. Candidates must be fully qualified, and those with previous Hospital experience will be preferred. Salary £250 per annum and bonus in accordance with the Civil Service (No. 1) Award (about £135 as from September 1, 1922). Applicants must be accompanied by not less than three testimonials, which must reach me not later than Wednesday, the 9th August proximo, endorsed "Appointment of Dispenser." By order Macdonald, Clerk to the Guardians, Union Offices, All Saints, Manchester, 20th July, 1922.

LANCHESTER.—A good Junior wanted, about 19; no Sunday duty. Apply, giving fullest particulars, as to lary, etc., to Henry Tinker, 104 Claremont Road, Pendleton. Please consider all applications not answered in three days as declined.

IDLANDS.—A thoroughly capable and energetic unqualified Assistant required for a busy, light Retail Cash and Dispensing business; permanent post; progressive salary. 12/100, Office of this Paper.

T. BARTHOLOMEW'S HOSPITAL, Rochester, Kent (105 beds).—Lady Assistant Dispenser required; Apothecaries' qualification necessary; salary £120; tea provided. Applications, stating full particulars, experience, &c., together with copies of recent testimonials, to be addressed to the Secretary.

VALES.—Wanted an unqualified Assistant; must be a good Counterman and Salesman; a knowledge of Photography and fitting trusses essential; outdoors; easy hours. Apply, Francis & Co., Chemists, Wrexham.

WEST LONDON HOSPITAL, Hammersmith Road, W.6.—Assistant Dispenser required for temporary Relief work; must be used to Hospital Dispensing. Apply by letter with copies of testimonials, stating age, experience, and salary required, to the Pharmacist.

ASSISTANT for light Country Retail with Photographics; must be courteous and capable Counterman; energetic and trustworthy. Please state age, experience, and salary, outdoor, and up-to-date references. Harvey, Chemist, Knaphill, Woking.

BRANCH MANAGER (qualified) for branch (London), accustomed to N.H.I. Dispensing and cash retail trade, with knowledge of Photography and Window-dressing. State salary required and when disengaged, to R. S. H. Houseman, M.P.S., 5, New North Road, London, N.1.

INCOMPETENT Assistant of good address (unmarried), not under 25, one with good-class experience, for old-established family, Retail, Dispensing, and Photographic business; must be active and reliable; send full particulars, with references, and salary required (outdoor). Shillcock & Sons, Bromley, Kent.

JUNIOR, good all round experience. State age, when disengaged, salary required (outdoors), photo and references, Oliver & Crick, Maidstone, Kent.

JUNIOR wanted, Lady or Gentleman. State age, experience, references, and salary to Willis, 71, Broadway, Cardiff.

JUNIOR male Assistant (outdoor) required for good-class Dispensing Business in Surrey. Apply, Chapman, Esher, Surrey.

OCUM.—Wanted, registered woman Pharmacist from August 14 to 26; easy hours. Please reply, giving usual particulars, H. Richards, M.P.S., Brynhyfryd, Swansea.

OCUM; gentleman; qualified; September 2 to September 16 inclusive; must be used to good-class dispensing and photographic business, and possess undeniable references. Please state terms and send photo, if possible, which will be returned. Vale, Rexall Pharmacy, Ilkley.

OCUM, qualified, to take sole charge, August 10 to 31; 10 miles out of London; state full particulars. 13/10, Office of this Paper.

MANAGER, qualified; salary to commence, £5 5s. weekly; South Lancs.; preference given to one who would invest 100; permanency. Apply, with references, 11/23, Office of this Paper.

QUALIFIED Lady Assistant from September 4; Counter and Dispensing. Full particulars to Miss Brennan, 11, The roadway, Church End, Finchley, N.3.

QUALIFIED; manage branch London; good permanent position; must deposit £200. Apply, P. C. B., 46/28, Office of this Paper.

QUALIFIED Senior and Junior; both must be of good appearance and address, and have had the best experience. Apply by letter, giving full particulars, to "B. S." Messrs. Cooper, Son & Co., Ltd., 24 Sloane Street, S.W.1.

QUALIFIED Assistant; Dispensing and good-class Retail, Photography, Window-dressing; energetic; outdoor. State full particulars, age, height, experience, salary required, etc.; photo returned promptly; abstainer preferred; permanent and progressive to right man. Davis, Chesham, Bucks.

UNQUALIFIED Assistant, good Dispenser; must have Optical qualification; permanent and progressive position; state age, salary required, and when at liberty. 12/10, Office of this Paper.

UNQUALIFIED Assistant required (London); first-class experience; good counterman, reliable dispenser, knowledge of photography essential. Apply by letter, giving full particulars, to 9/271, Office of this Paper.

WANTED, at once, for East London business, thoroughly Smart Junior, unqualified; no Thursday evenings; one Sunday evening a month. Fullest particulars and references at once to 14/17, Office of this Paper.

WANTED, Locum, qualified, for second week August, 7th till 12th. Jones, Chemist, Ammanford.

WANTED, at once, active, trustworthy Assistant for Dispensing and General Retail; qualified and total abstainer preferred; references must stand strict investigation. Apply, with all particulars and salary required, to W. Wilson, 80, Lams Conduit Street, High Holborn, W.C.

WANTED, unqualified Assistant; one accustomed to quick retail and N.H.I. dispensing. Please reply giving full particulars, references, and salary required, to "Chemist," London, E. 13/1, Office of this Paper.

WANTED, unqualified Assistant, male; Counter and some Dispensing; send usual particulars, salary required, references; Ipswich; outdoors. 12/23, Office of this Paper.

WANTED, immediately, smart Junior or Improver, aged 18-22, for quick counter trade in busy centre; permanency, with progressive salary to good salesman. Apply, stating age, experience and salary required, enclosing photograph and copies of references, to W. Bates & Co., Ltd., 50 Oxford Street, Southampton.

YOUNG qualified Man required, with first-class Dispensing experience, as Senior Assistant. Full particulars to T. B. Cattell's Exors., High Street, Sutton Coldfield.

WHOLESALE.

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

A WELL-CONNECTED Representative wanted for four rapid selling original lines; 15 per cent. commission basis; state exact territory. 9/273, Office of this Paper.

IF a first-class man who is already calling on Chemists, Hairdressers, and Stores in London and district is desirous of representing a well-known Proprietary House as a side line on commission basis only (£3 week guaranteed) will he write giving particulars? 8/263, Office of this Paper.

PACKED Goods.—Department Manager required for Midlands; accustomed to control of staff and stock; experience in modern methods of filling and finishing essential. Full details of experience and salary required to 14/37, Office of this Paper.

PLASTER Manufacturers require Representative with Chemist connection in London, Middlesex, Herts and Essex, to offer Plasters as an additional line on salary and commission basis; no expenses. 9/268, Office of this Paper.

POWDER Puffs.—20 per cent. commission offered Travellers who have first-class experience selling same and good connection amongst high-class Chemists, Perfumers and Stores in provinces; fine range; novel and quality samples. State territory covered and particulars in confidence, 13/7, Office of this Paper.

PRICING and Invoice Clerks required by City Wholesale Chemists and Druggists; must have had previous experience. State age and salary required. 9/267, Office of this Paper.

REPRESENTATIVE required for London district by provincial house, salary and commission, for Drugs, Pills, Tablets and Packed Goods. No objection to divided time if lines do not clash. Full details of ground covered, previous experience and salary to 14/370, Office of this Paper.

REPRESENTATIVE wanted by firm of fine Chemical Manufacturers to call on Wholesale Druggists, Shipping Houses, &c., in London and in the Provinces; previous experience essential. Write giving full particulars of experience, age, and salary required, to 8/261, Office of this Paper.

REPRESENTATIVES wanted to sell good selling proprietary; liberal commission offered. The Spa Toilet Co., Leamington Spa.

REQUIRED, Foreman to take charge of Steam Laboratory; previous experience essential; good knowledge of Galenicals. Apply by letter, giving fullest particulars, to F. J. G., c/o C. J. Hewlett & Son, Ltd., 35/42, Charlotte Street, E.C.2.

STOCKKEEPER for West-End Stores; must be well up in Patent Medicines; hours 8.30 to 6 o'clock, Saturday 1 o'clock; state age and salary required. P.C.B., 46/11, Office of this Paper.

[Colonial, Indian and Foreign.]

HALL Certificate.—Will any lady with above certificate willing to undertake Hospital Dispensing in the Colonies send date of certificate, age and experience? P.C.B., 46/29, Office of this Paper.

SITUATIONS WANTED.

[HOME.]

RETAIL.

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

A.A.—ACTIVE, reliable qualified; 37; accustomed to management good Retail and Dispensing, with Photography; disengaged shortly. "M.P.S." 3 High Road, Willesden Green, N.W. Phone: Willesden 1039.

A.A.—LOCUM, free to August 21; highest references; country or seaside preferred. Brown, 74 West Hill, Putney, London.

A CHEMIST can thoroughly recommend his qualified Assistant; 28; tall; of good appearance; accustomed to Retail Dispensing and Photographic business; good Window-dresser; Liverpool or district preferred; permanency desired; disengaged. L. W. K., 11/13, Office of this Paper.

A LOCUM; qualified; 34; registered by R.P.U.; disengaged first two weeks August and August 29. "C." 14 Hayfield Road, Oxford.

A MAJOR Man, young, wants job in or towards Central London, with company or private chemist; would specialise in sales; any suggestions considered. Further particulars from 13/38, Office of this Paper.

A MANAGER of Midland firm of Chemists would act as Locum during his vacation; South or London; terms moderate. "X. L.", 12/13, Office of this Paper.

A PHARMACIST (38) will be open for engagement by September; Manager, Senior, Locum; good all-round experience; 4 years' West-End dispensing, 10 years' managership, now locum; good salesman, ability for increasing returns. "M.P.S.", 8 Priory Villas, Friern Barnet, N.11.

A—QUALIFIED Man; 23; disengaged; experienced in Photography, Window-dressing, etc; permanency or locum. R. Hutchins, 141 Waldegrave Road, Brighton.

A DVERTISER, middle-aged, active, good address, experienced London and provinces, counter prescriber, salesman, originally served apprenticeship, seeks management Drug Stores or Herbalists; on commission or otherwise; any large centre where scope for increase; unencumbered; has own lines. Apply 13/8, Office of this Paper.

A GE 20, Part 1 Minor, respectable, energetic, desires post, good Dispensing establishment. Cutex, Central Station Pharmacy, Sunderland.

A S Locum; disengaged August 6; excellent references and experience; moderate salary. "Locum." c/o Mr. Oram, Chemist, Romsey, Hants.

A SSISTANT, 25; unqualified; disengaged; thoroughly experienced in Dispensing, Counter, Window-dressing and Photography; used to brisk high-class pharmacy; North Counties preferred; excellent references; good appearance and address; moderate salary. 5/38, Office of this Paper.

A SSISTANT (23), desires position; any district; excellent references; Edinburgh and Colonial experience; Wholesale and Retail. Kiwi, 92, Station Road, Finchley, N.3.

A SSISTANT (30), unqualified, disengaged, seeks situation Dispensing, Counter, Window-dressing; good references; 3 years' experience; please state salary. Webb, 137, Midhurst Road, West Ealing, W.15.

A SSISTANT, 37, married; educated Willesden Grammar School; experienced in Dental work. M. L., 15321, Office of this Paper.

A SSISTANT or Dispenser, 42, married; can drive motor; w service; any business appointment. M. L., 8656/21, Office of this Paper.

A SSISTANT, in 20th year, tall, good appearance; finished apprenticeship in August; accurate Dispenser, Photography, Window-dressing; excellent knowledge of Counter Work. Baker, 142a, Brownhill Road, Catford.

A SSISTANT, unqualified; Stock, Counter, N.H.I., Dispensing; Prescribing; desires change; country or seaside preferred. 12/21, Office of this Paper.

A SSISTANT (25), ex-Service, willing, smart address, and experience; Southern Counties preferred. Elsimore, Brookland, Belvedere Road, Bournemouth.

A SSISTANT; unqualified (holidays or permanent); competent and highly recommended; abstainer; disengaged.—A., St. Thomas Road, Finsbury Park, N.

A SSISTANT; disengaged; 20 years' London experience; Dispensing, Counter, Stock; unqualified; 45. Fletcher, Kingsdown Road, Holloway, N.19.

A SSISTANT (unqualified); 32; married; 15 years' all-round experience suburban and West-End; excellent references; competent Dispenser; locum or permanency; disengaged. Fenn, 8, Carnarvon Road, Leyton, E.10.

BIRMINGHAM.—Junior, 4½ years' experience, requires position in good Dispensing business. H. Davis, 13, Hall Street, Balsall Heath, Birmingham.

BIRMINGHAM.—Locum, qualified, age 40; wide experience smart Counter; now disengaged. W. H. Meyer, M.P. 442, Stratford Road, Birmingham.

B RANCH Manager or Assistant; qualified; 26; competent excellent references; Bath or Bristol districts preferred. Rice, 18 Longfellow Avenue, Bath.

B RANCH Manager or Locum; 50; qualified; all-round experience; London and provincial. Pharmacist, 38 Wendon Road, Harlesden N.W.

C APABLE Manager or Locum; qualified; London and provincial experience; disengaged August 21. Peacock, Commercial Road, Newport, Mon.

C HEMIST, English and Colonial experience, accustomed to control, wants post as Assistant with view to partners in progressive, up-to-date business; age 40. "Britana," 10, Office of this Paper.

C HEMIST'S Assistant, 27; educated Bishop Stortford College; war service, 4 years. M. L., 60785, Office of this Paper.

D ENTAL Mechanic, 29, desires permanency with Chemist; 10 years' experience; knowledge of dispensing, counter, and photography; excellent references. Kemp, 10 Leamore, Stevenage, Herts.

D ISENGAGED.—Assistant, unqualified, 27, married; Dispensing, Counter, Window-dressing, and Photography; excellent references; East-End preferred. Apply, L. A. D., Latham Road, East Ham E.6.

D ISPENSER, 40, married; war service 4 years; experienced Dispenser; trained Male Nurse and Operating Room Assistant. M. L., 3421/22, Office of this Paper.

D ISPENSER'S Assistant, 26, married; educated L.C.C. School of Pharmacy; war service 2½ years; Drug Stores experience. M. L., 48877, Office of this Paper.

D ISPENSER, part or whole; East-End preferred; 15 years' Jews' Mission, Aldgate, and other doctors; last 4 years Royal Herbert Hospital, Woolwich. Rudland, 76 South Road, Forest Gate.

D ISPENSER; unqualified; experienced in general retail Dispensing; Photographic business; temporary or permanency; dispensing preferred, but not essential. L. Oxenberry, 11 Frazer Street, Truro.

SPENSER to Doctor or Chemist; unqualified; excellent reference. Innes, 2 Ferndale Road, Weymouth.

SPENSER to Doctor (temporary); book-keeping if desired; well recommended.—Miss Willis, 7, Atherton Road, Forest Hill, Essex.

SPENSER, lady, experienced, to Doctor or first-class Dispensing establishment. Apply 12/39, Office of this Paper.

SPENSER, lady, desires post with Doctor or Chemist; thorough experience in Retail and Dispensing. 14/40, Office of this Paper.

DOCTOR'S daughter desires post as Dispenser; 7 years' experience; hall qualification; good references; London or Eastern counties preferred. B., 3 Princes Road, St. Marks-on-Sea.

ELDERLY Pharmacist, single, with small capital, desires working interest in business; references exchanged. C. M., Sherard Road, Eltham, S.E.9.

ENERGY requires direction.—Young, active; part-time, home or outside; Birmingham district; drug and commercial experience; war disability prevents permanent retail. Address, Hunton Road, Erdington, Birmingham.

EXPERIENCED West-End Man, desiring change, seeks responsible position in good-class house. Apply, A., 6/35, Office of this Paper.

HOLIDAY or relief work required by experienced unqualified Assistant; disengaged until end of August. Apply 14/25, Office of this Paper.

JUNIOR or Assistant (unqualified); good class experience; neat worker; good references; permanency preferred; temporarily entertained. Apply, 12/19, Office of this Paper.

LADY Dispenser requires post; Hall qualification; book-keeping; good testimonials; hospital or doctor's practice. Apply, Wey Cottage, Ash Vale, Surrey.

LOCUM, qualified, will accept moderate terms to occupy period disengaged, August 2 to 16. "Pilula," 31 Chapel Street, Stonehouse, Plymouth.

LOCUM or permanency; unqualified; 38; experienced; Retail and Dispensing; small salary; references. Turner, 30 Crest Road, Bromley, Kent.

LOCUM or holiday relief; reliable; reasonable; City, West-End, and Hospital experience; disengaged; best references. "Yehen," 65 Pevensey Road, Eastbourne.

LOCUM, disengaged, qualified; best references; thoroughly reliable and trustworthy; moderate salary. "Chemist," 4, Mond Terrace, Cheltenham.

LOCUM, qualified, has vacant dates, August 1 to 12, both inclusive; whole or part time; dispensing, hospital, surgery, or pharmacy. "Major," 1 Vicar's Hill, Lewisham, S.E.13.

LOCUM or Assistant; 24; qualified; Photography; moderate salary; London or district preferred. 13/6, Office of this Paper.

LOCUM; disengaged for 8 weeks from now; thoroughly reliable; all-round experience; young; energetic; pharmacy asked after as it should be. State terms in reply "M.P.S.," 13, Office of this Paper.

M.P.S. AND R.D.S.; elderly, active, energetic; many years' good experience; sold his business; Branch Manager, Locum, or supervise; easy terms if suitable berth. Manager, Bass & Wilford, Nottingham.

MANAGER, after September 25 (or Locum August 7 to 13, August 28 to September 17); tall, good appearance and dress; excellent references. C/o C. Gilling, Chemist, Sanning Lane.

MANAGER or Senior Assistant; 28; tall; qualified; splendid experience; highest references; dispensing, photography, and prescribing; temporary or permanent. G. W. Rankin, Gosmore Norton, near Bath.

MANAGER, Assistant, or Traveller; 22; educated Brighton Grammar School; qualified; war service. M. L., 11038, Office of this Paper.

MEDICAL Storekeeper, 39, married; educated National School, Rutland; war service, 6 years; experienced Dispenser, Nurse. M. L., 3177/22, Office of this Paper.

MR. C. C. H. CADGE, Bingham, recommends his nephew, age 20, height 6ft., for a Junior Position where good all-round experience could be gained. Passed Part I., and was with above for three years and made excellent progress. W. E. Griffiths, 384 Heneage Road, Grimsby.

PHARMACIST (25), energetic, with Retail, Teaching and Hospital Experience, wishes responsible post in a good dispensing business, and is willing to invest £250 with a view to expansion, partnership, or the like. "K.," c/o Taylor, 53 Coldharbour Lane, S.E.5.

PHARMACY (Retail), 26, married; 4 years' war service; educated Grammar School, Cambridge; languages, French, German, Latin; fully trained in Pharmacy; taking qualifying exams. M. L., 2360/22, Office of this Paper.

QUALIFIED, 34, married; Liverpool district; free October; 20 years' sound experience; permanency desired. 12/9, Office of this Paper.

QUALIFIED (41), married, requires situation immediately; Locum or otherwise; 20 years' experience. Davis, Far Fold Terrace, Armley, Leeds.

QUALIFIED Chemist as Locum, disengaged until August 9; references. Statim, 74, Hamilton Road, Golders Green, N.W.11.

QUALIFIED elderly Chemist seeks an engagement. C. M., 34, Honor Oak Park, S.E.23.

QUALIFIED; 30; tall, active; varied experience; salary moderate; London or suburbs.—"Station," 49 Elizabeth Street, Belgravia, S.W.

QUALIFIED Lady (22) desires position, Brighton or South Coast; good references; 4 years' experience. "Keen," 180, Shipland Road, Paddington, W.9.

QUALIFIED, Minor, age 28, desires post in or near London with Chemist, for N.H.I. dispensing, hospital, or institution; had previous experience; free August 12. Apply P. C. B., 46/31, Office of this Paper.

QUALIFIED, 38, single, abstainer, desires permanency; managership, or otherwise; good experience and references. "H.," 128 Dorset Road, S.W.8.

QUALIFIED recently (24); as Locum or First Assistant; competent; excellent references. G. H. P., 39 Newtown, Bradford-on-Avon.

QUALIFIED Lady Pharmacist, 4 years' West-End and 2 years' Continental experience; excellent testimonials; required post. Apply, "Pharmacist," 88 Vauxhall Bridge Road, S.W.1.

QUALIFIED; long and varied experience; excellent references; disengaged August 18th. Chemist, 44 Elmhurst Road, Forest Gate, E.7.

RECENTLY qualified.—Ex-Serviceman (26) desires post as Assistant, Manager, or Locum. 14/33, Office of this Paper.

REFERRED one subject (27), 7 years' high-class Counter and dispensing, requires post for about a month. "W.," 4 Kent's Road, Torquay.

SMART qualified Assistant seeks situation; Counter, Dispensing, and Photography; age 23; height 5 ft. 9 in. Apply, 11/37, Office of this Paper.

SQUARE-TRAINED, recently qualified, requires Locum or other holiday post; tall, energetic, abstainer, with good West End and suburban experience, and knowledge of French; free until October. L., 46 Compton Road, London, N.21.

SUPERINTENDENT-Dispenser or Cover; single; 50; best references; experience includes medical and dental. "Chemist," 23 Wellclose Mount, Leeds.

UNQUALIFIED (referred Botany), varied experience, abstainer; requires permanency; salary, £3; disengaged middle August. "Hibernia," Victoria House, Beach, Clevedon.

UNQUALIFIED, 24, desires situation in good class Pharmacy; 4 years' experience, Dispensing and Photography; excellent references; West of England preferred. Gee, Walsdon Wood, Bow, Devon.

UNQUALIFIED, 30; experienced; highest references; part or whole time. "W.," 12, Desenhans Road, Dulwich Village, S.E.21.

WELSH Assistant, 23; 18 months' war service; educated College School, Wales. M. L., 42050, Office of this Paper.

WILL any Pharmacist get into communication with advertiser, for an Assistant? 25; unqualified; experienced, reliable. Culverwell, Tarcombe, Chard.

YOUNG Lady, passed Part I. July wishes to serve apprenticeship beginning September in London or suburbs. P.C.B., 46/12, Office of this Paper.

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ADVERTISER desires post in October as Secretary or Under-Secretary to a progressive firm of chemists or sundries men. Has a thorough knowledge of the drug and sundries trade, and is a completely qualified company secretary, capable of taking absolute command of entire office, including accountancy department; age 31. 11/38, Office of this Paper.

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IAM open for a decent offer; practical working experience, wholesale, all departments; good, sound retail training; thorough checker drugs, chemicals; keen, smart; interview London Thursday afternoons; town references, city, store and West End dispensing; book-keeping (perfection); own initiative.—John, 7, Elm Tree Road, N.W.8.

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